

**BONANZA  
"CEMENTILE"  
ROOFING**

307.207 100.00  
100.000000



# Bonanza "Cementile" Roofing



(Registered Trade Mark)

**AMERICAN CEMENT TILE  
MANUFACTURING COMPANY**

INCORPORATED 1902

**PITTSBURGH - - PENNSYLVANIA**

PLANTS: Wampum, Pa.                      Lincoln, N. J.                      Birmingham, Ala.  
OFFICES: Pittsburgh - New York - Philadelphia - Atlanta - Birmingham

*Adaptable To  
All Types Of  
Construction*

*Interlocking,  
Flat, and  
Channel  
"Cementile"*

*Pitched, Flat,  
and Saw-  
Tooth Roofs*

*More Than  
80,000,000  
Square Feet  
Of Bonanza  
"Cementile"  
Laid During  
Past Twenty  
Years*





# Bonanza "Cementile" Roofing

## INTRODUCTION

**B**ONANZA "Cementile" are very large, light, steel-reinforced cement roofing tile, all factory-made and cured—a specialized product brought to its highest state of development.

*Three Dis-  
tinct Types*

They are furnished in three distinct types; namely, Interlocking Tile, Flat Tile, and Channel Tile, and all necessary trimmings such as Ridge Tile (of various types), Skylight or Glass Insert Tile, Flashing Tile, Collar Tile, etc.

The Tile are laid directly upon the open roof purlins which are spaced apart on a span suitable for the type of "Cementile" selected.

In no case is sheathing or other base support required; this eliminates excessive weight and insures greatest economy in the design of the supporting structure. Total roof load need not exceed 45 pounds per square foot for Interlocking Tile, and 50 pounds per square foot for Flat Tile.

*No "Forms"  
Required*

All in all, Bonanza "Cementile" Roofs are roofs of economy and quality, speedily laid, with guaranteed results backed by an established reputation as manufacturing and contracting engineers over a period exceeding twenty years.

Bonanza Interlocking Tile are designed for pitched roofs. Laid directly on purlins spaced approximately 4'-0" apart, they are fire and water proof, the finished surface having a particularly pleasing red Spanish tile effect. Like Flat and Channel Tile, they are strong and light.

*Interlocking  
Tile*

Bonanza Flat Tile and Channel Tile are designed for flat roof construction or for pitched roofs where it is desired to waterproof with composition covering. These tile are also laid directly on purlins; the 1½" Flat Tile for standard spans of 5'-0", and Channel Tile for the longer spans, are a combination of great strength and lightness, which eliminates all form work and assures speed in erection with positive results.

*Flat Tile  
Channel Tile*

There is little doubt that the roofing problem is the most important in the design of a building of whatever type; mill, machine, foundry, theatre, garage, pier shed, etc. Aside from considerations of maintenance, efficiency, and fire resistance, it is the roof which protects men and materials, machinery and equipment.

The pages following, with the illustrations and the sketches, give general and detailed information that will aid in the correct solution of the roofing problem.

*American Cement Tile Manufacturing Company*

1089-B3822 TCE

# Bonanza "Cementile" Roofing

## SERVICE

Engineering  
Co-Operation

THE AMERICAN Cement Tile Manufacturing Company maintains an Engineering Department, the services of which are available to its clientele without charge. Owners, designing engineers, architects, and others will find that the cooperation of this department will prove of great economic value in the development of their plans. It is suggested that inquiries be made and recommendations requested at the earliest possible stage of the contemplated work.

Roof

Design

This department will, if desired, design the roof construction where the products of the company are to be installed. It is especially desirable that the company be consulted in order to avoid the complications that may arise, particularly in the solution of unusual problems.

Proposals  
and Estimates

Definite proposals or approximate estimates will be furnished—as much information as possible should accompany inquiries.

Erection

The erection of the products of the American Cement Tile Manufacturing Company is performed *preferably* by the erection crews maintained by the company itself; the use of experienced and efficient erectors being of the utmost importance for satisfactory results.

Guarantee

All materials and workmanship are fully guaranteed.





# Bonanza Interlocking Tile

**I**NTERLOCKING Tile are designed for pitched roofs and form a finished, water-tight and fireproof covering. They are laid directly upon the roof purlins, no sheathing or other forms or supports being required.

Standard Interlocking Tile are 26" wide by 52" long (24" x 48" exposed surface) by 1" thick and weigh approximately 16 pounds per square foot; they are properly reinforced with a galvanized steel fabric and develop a breaking load of 350 pounds per square foot, which allows for even more than a safety factor of 5.

The tile are held in place on the purlins by means of a 1" hanger along the full width of the top of each tile.

When placed on a roof, the *roll* of one tile interlocks with the *rabbit* on the next; the joints thus formed are pointed with Lastik Cement of our own manufacture.

The cross joints are formed by lapping and staggering each row of tile about 4" over the next lower row, these joints also being pointed.

For sky-lighting, Interlocking Wire-Glass Insert Tile are furnished; these are of the same design as and interchange with standard Interlocking Tile—see illustrations on page 8.

For complete data and specifications covering Interlocking Tile see pages 36 and 37.

Description

Application

Sky-Light  
Tile



## Bonanza Flat Tile



### Description

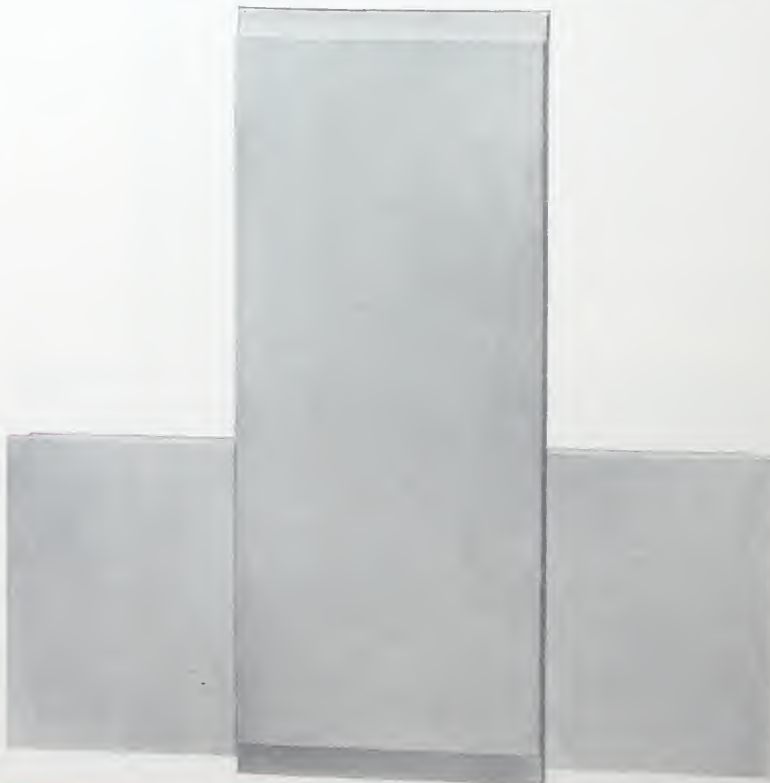
**F**LAT Tile are designed for both flat and pitched roofs; the application of a standard composition roofing is required to make the roof water-tight.

Standard Flat Tile are  $1\frac{1}{2}$ " thick, 24" wide and 60" long, weigh approximately 16 pounds per square foot, and properly reinforced. The standard purlin spacing is 5 feet; where necessary, other lengths are furnished for spacings over and under 60" and for flashing.

### Application

The ends, which are offset to a depth of  $\frac{1}{4}$  inch, are laid directly upon the flange of I-beam purlins, after which the joints are properly pointed and the entire roof covered with some form of composition roofing. (Channel sections having the equivalent strength of the I-beams may be used for purlins, but the flanges should be not less than  $2\frac{1}{2}$ ").

See page 38 for complete data and specifications covering Flat Tile.





# Bonanza Channel Tile



**C**HANNEL Tile are designed to meet the demands of the present tendency to the use of extra wide spans in flat roof construction. They are also used extensively on saw-tooth roofs.

*Description*

Standard Channel Tile are 18" wide by 96" in length, and reinforced with bars and galvanized steel fabric; the webs of these tile are 1" thick, and the flanges are  $3\frac{3}{4}$ " deep with a thickness of  $1\frac{5}{8}$ ". Special Channel Tile are furnished for spans over and under 96".

The ends, which are offset to a depth of  $\frac{1}{4}$  inch, are laid directly upon the flange of I-beam purlins, after which the joints are properly pointed and the entire roof covered with some form of composition roofing. (Channel sections having the equivalent strength of the I-beams may be used for purlins).

*Application*

For complete data and specifications covering Channel Tile see page 39.



# Bonanza "Cementile" Roofing

## ADVANTAGES

### Economy

THE cost of Bonanza "Cementile" Roofing is less than for any other fireproof roofing. All installations are fully guaranteed. The upkeep is nil, owing to the absence of the usual maintenance causes. Being laid directly on steel purlins, no sheathing, nailing strips, metal straps or fastenings are required.

### Weight

On account of the economic design and faultless workmanship, the weight of Bonanza "Cementile" Roofing is nearly fifty per cent less than that of poured concrete slabs. In designing trusses and purlins, the total roof load need not exceed 45 pounds per square foot for Interlocking Tile and fifty pounds for Flat Tile, which keeps the weight and cost of steel work down to a minimum.

### Strength

Bonanza "Cementile" Roofs will carry all roof loads usually encountered. The breaking load shown by tests for the New York Building Department, held at Columbia University, was determined at 350 pounds per square foot.

### Adaptability

There is a Bonanza "Cementile" adaptable to any type of roof construction and for any size building.

### Erection

All field work is done *preferably* by our own experienced men, which insures absolute satisfaction. "Cementile" Roofs may be laid regardless of weather conditions, which insures against delays.

### Expansion

Interlocking Tile overlap and interlock in the formation of the complete roof, thus providing an expansion joint at every side and cross connection of each individual unit.

### Joints

### Long Life

Bonanza "Cementile" are impervious to water and the elements, are proof against fire and are everlasting under ordinary conditions.

### Bonanza Interlocking Sky-Light Tile





# *Installations* Bonanza "Cementile" Roofing



(Registered Trade Mark)

## BONANZA "CEMENTILE" ROOFING

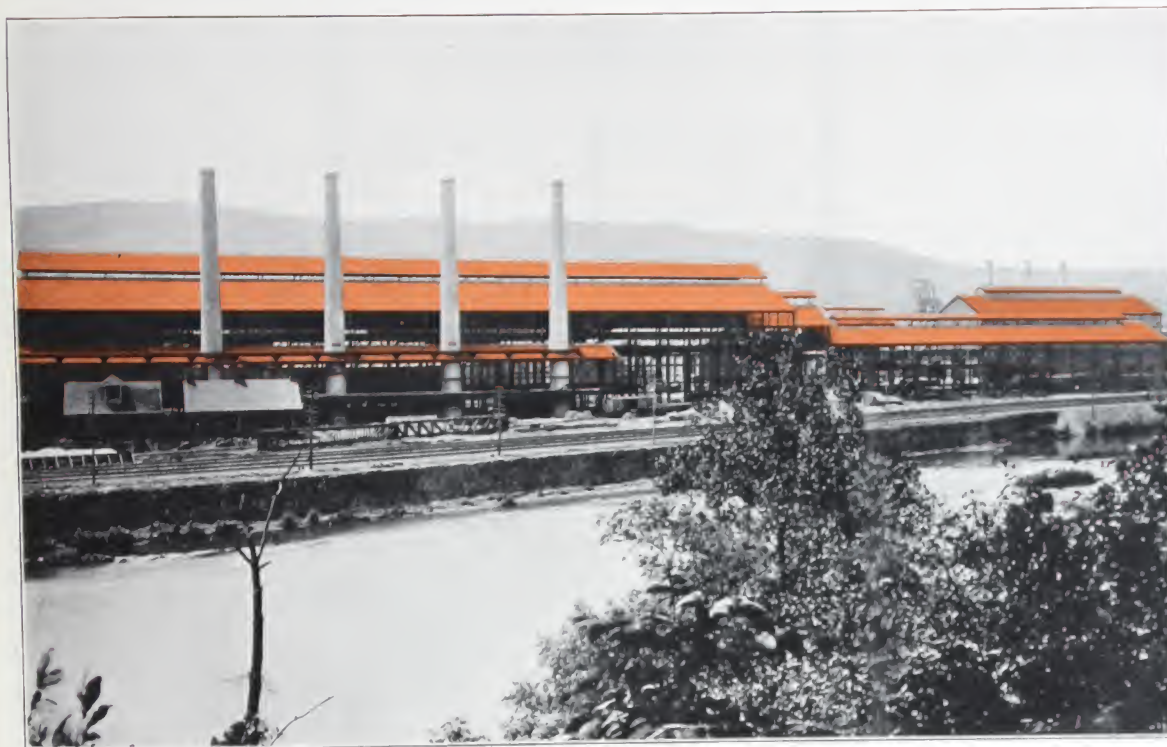
Watertown  
Arsenal,  
Watertown,  
Mass., Stone  
& Webster  
Const. Co.,  
Engineers and  
Contractors.  
Ten buildings of approxi-  
mately 470,000  
sq. ft. total area  
are covered  
with Bonanza  
"Cementile."



This illustration shows the bottom side of a Bonanza Interlocking "Cementile" Roof. Plant of Toledo Glass Company, Toledo, Ohio. Three installations have been made for this company.







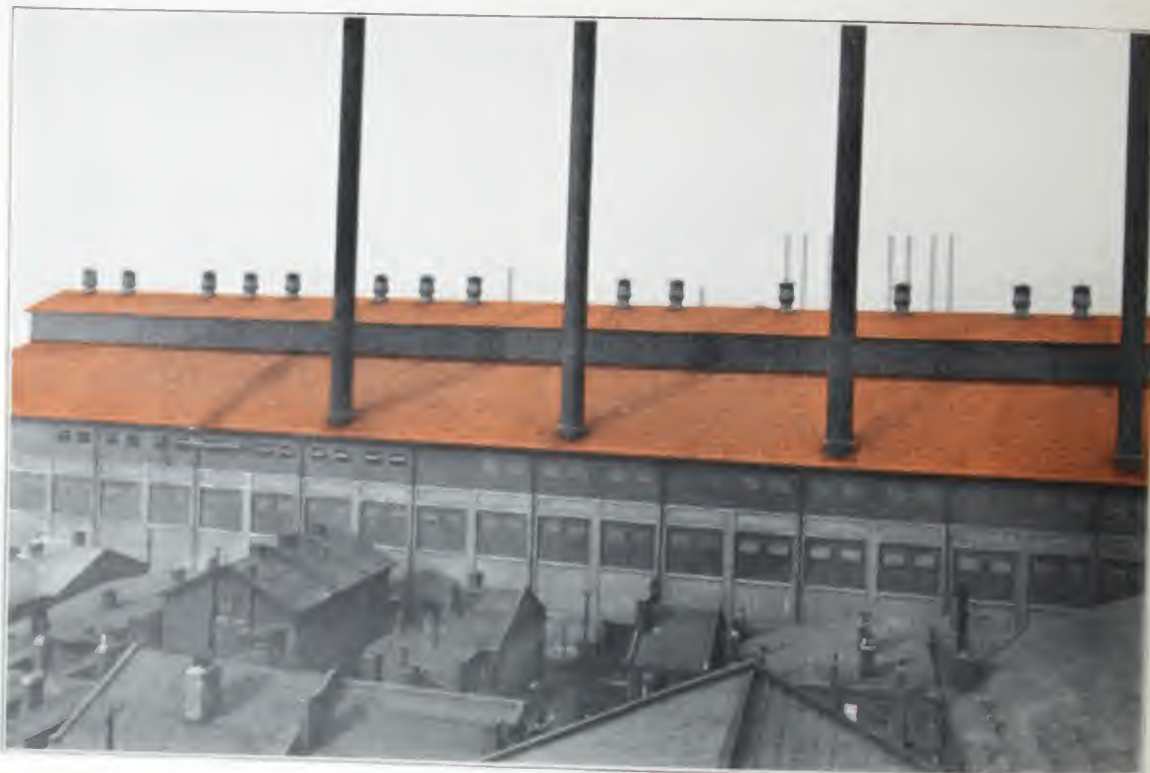
Bethlehem Steel Company, South Bethlehem, Pa. Sixty-three of this company's buildings having a total area of about 850,000 sq. ft., are covered with Bonanza "Cementile."



Part of the approximately 850,000 sq. ft. of Bonanza "Cementile" Roofing installed on 19 buildings for Baldwin Locomotive Works, Eddystone, Pa.

## BONANZA "CEMENTILE" ROOFING

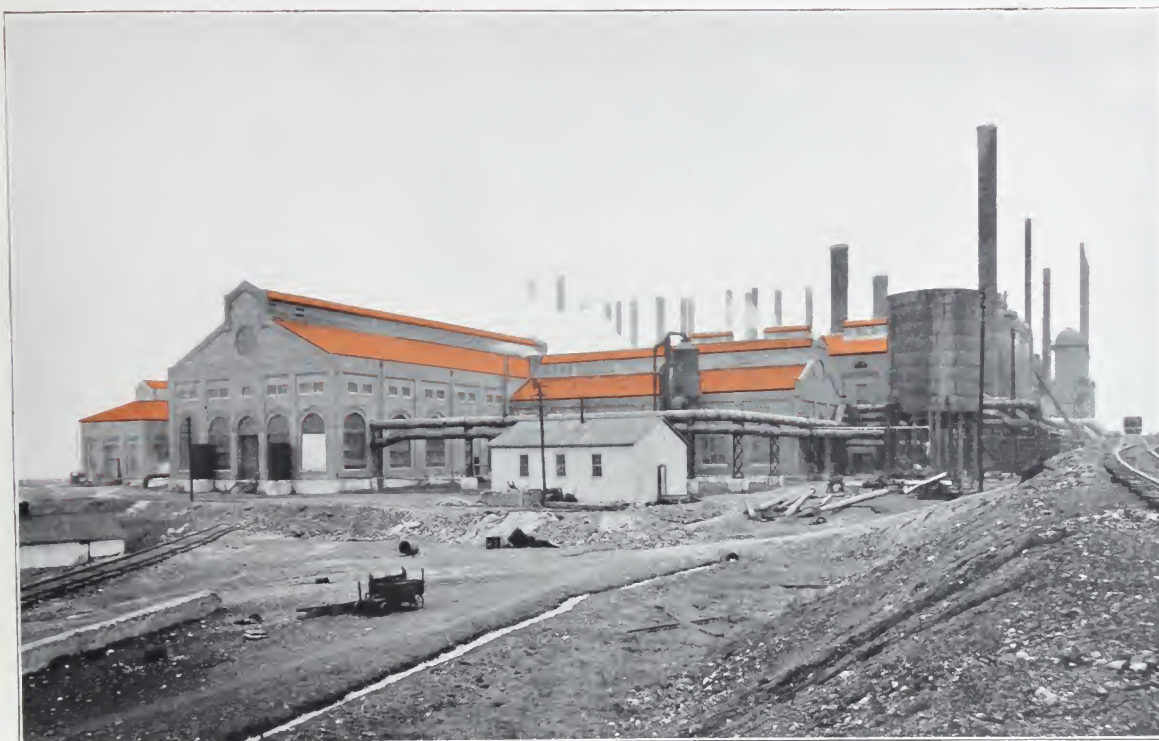
*Park Works of  
Crucible Steel  
Co., Pitts-  
burgh, Pa  
More than  
2,600,000 sq. ft  
of Bonanza  
"Cementile"  
has been used  
by this  
company.*



*Midland,  
Pennsylvania  
plant of Cru-  
cible Steel  
Company.  
Sixty-two in-  
stallations  
have been  
made for this  
company.*







*Woodward  
Iron  
Company,  
Birmingham,  
Ala., have used  
Bonanza  
"Cementile"  
on eight of  
their  
buildings.*



*General Elec-  
tric Company,  
West Lynn,  
Mass.  
"G-E" has  
used more  
than 370,000  
sq. ft. of  
Bonanza  
"Cementile"  
on 16 separate  
buildings.*

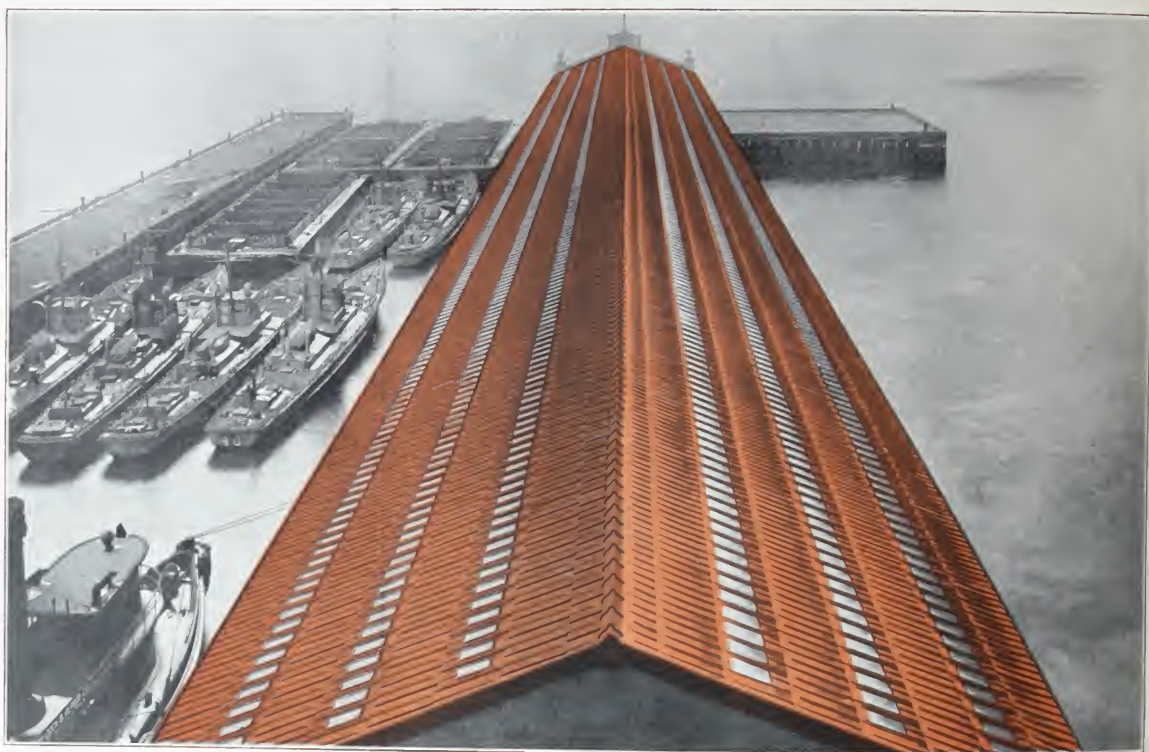


Bonanza Sky-  
light

"Cementile"  
on a pier shed  
of E. W. Bliss  
Co., Brooklyn,  
N. Y.

W. Pfaendler,  
Engineer.

This company  
has six build-  
ings with an  
approximate  
area of 200,000  
sq. ft. covered  
with Bonanza  
"Cementile."



Showing  
Bonanza Flat  
Tile ready for  
waterproof  
covering.

Lehigh Valley  
R. R. Co. Pier,  
Jersey City,  
N. J. Henry  
Steers, Inc.,  
Contractors.  
Four build-  
ings with total  
area of about  
110,000 sq. ft.  
have been  
covered with  
Bonanza  
"Cementile."







The Damascus Bronze Company of Pittsburgh, Pa., have five buildings covered with Bonanza "Cementile" McClintic-Marshall Co., were the Engineers and Contractors on this installation.



Plant of Hubbard & Company, Pittsburgh, Pa. Prack & Perrine, Engineers. Two Bonanza "Cementile" installations have been made for this company.



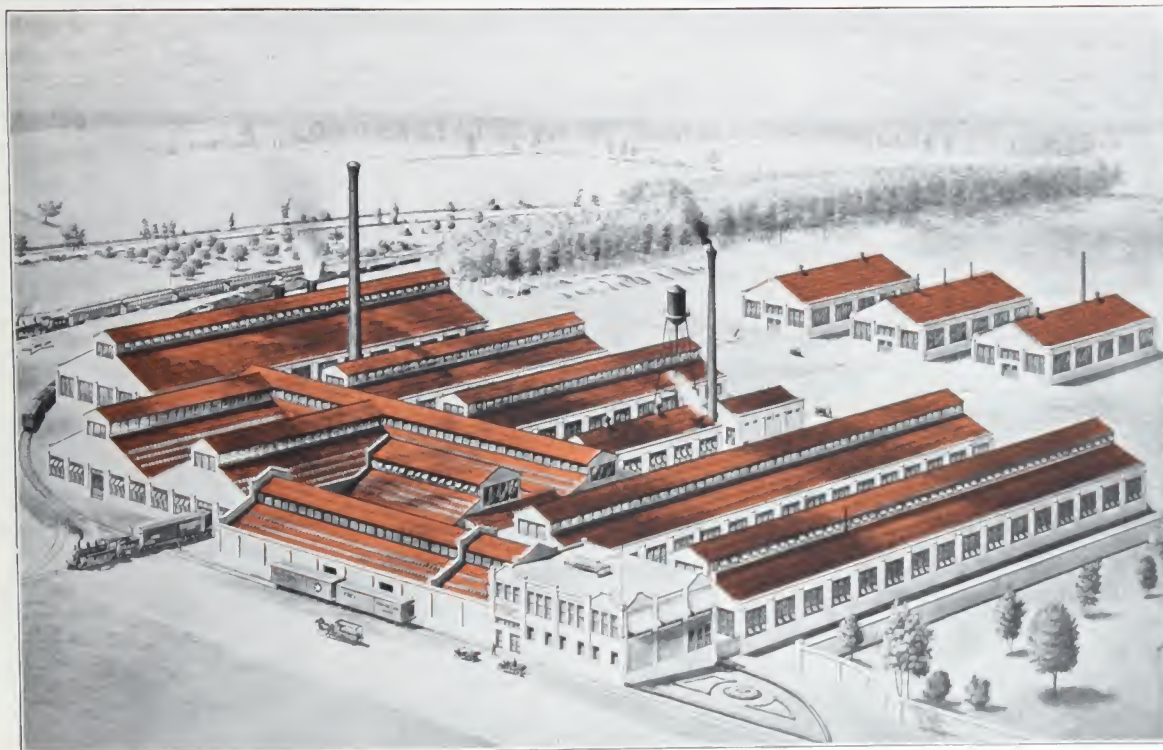
*Buildings of  
the West  
Virginia Metal  
Products Co.,  
Fairmont, W.  
Va. Jas. M.  
Boyle,  
Engineer;  
Fred T. Ley &  
Co., Contrac-  
tors; Dreher,  
Churchman,  
Paul & Ford,  
Architects.  
Entire Plant  
Covered with  
Bonanza  
"Cementile"*



*Fifty-four U.  
S. Government  
buildings at  
Muscle  
Shoals, Ala.,  
having a  
total area of  
more than  
1,000,000 sq. ft.  
are covered  
with Bonanza  
Flat Tile.  
Westinghouse,  
Church, Kerr  
Co., were the  
Engineers and  
Contractors.*







Plant of  
Nelson Valve  
Company,  
Philadelphia,  
Pa.  
Geo K. Hooper,  
Engineer.  
Eleven  
Bonanza  
"Cementile"  
installations  
have been  
made for this  
company.



The work of  
erecting a  
special  
"Cementile"  
plant at  
Muscle  
Shoals, of  
manufactur-  
ing, and of  
laying the tile  
for these  
buildings  
(which are a  
part of those  
shown at the  
bottom of  
page 16) was  
completed  
within four  
months.



## BONANZA "CEMENTILE" ROOFING

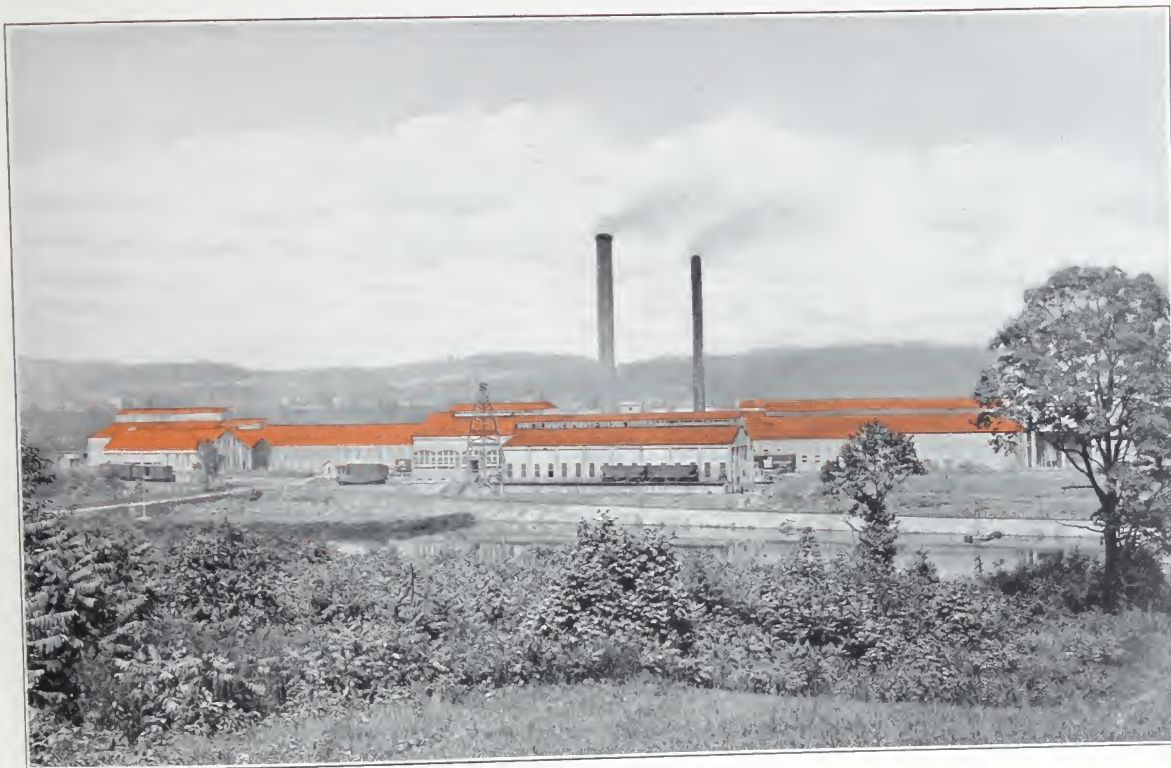
About 150,000  
sq. ft. of  
Bonanza  
"Cementile"  
were used on  
these build-  
ings of  
Union Switch  
& Signal Com-  
pany, Swiss-  
vale, Pa.  
McClintic-  
Marshall Co.,  
Engineers and  
Contractors.



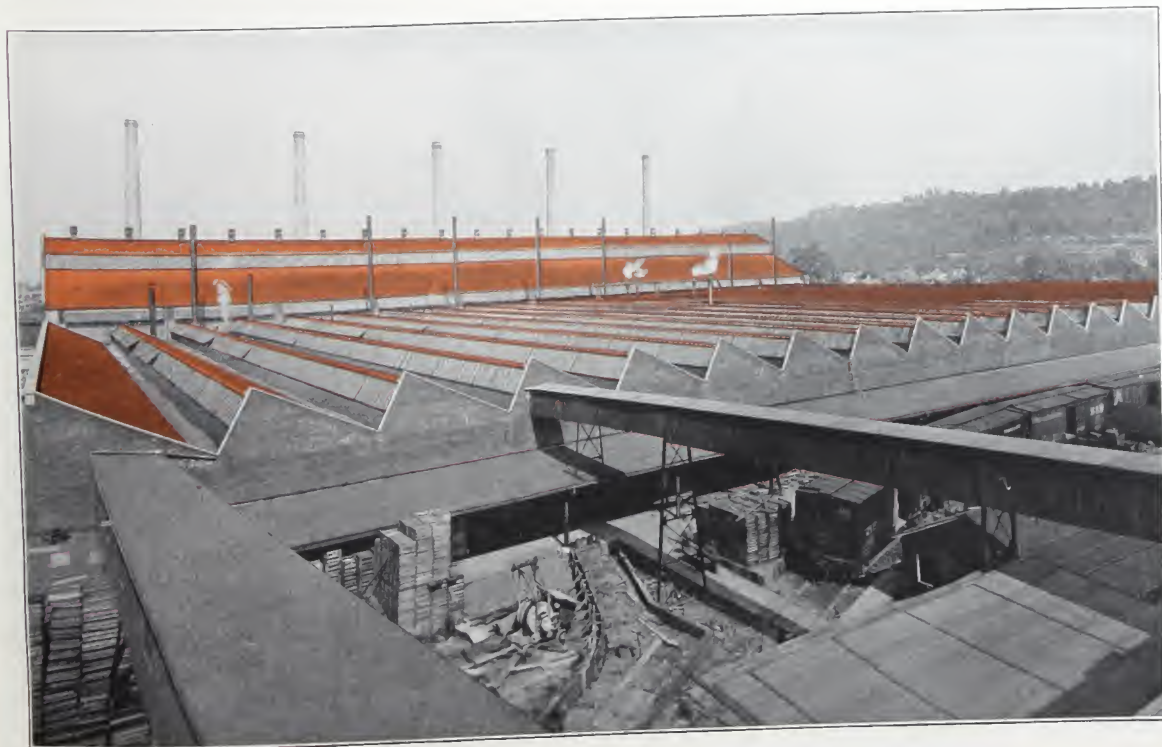
Part of the  
seven installa-  
tions, totalling  
approximately  
87,000 sq. ft. of  
Bonanza  
"Cementile"  
made for  
Bridgeport  
Brass Co.,  
Bridgeport,  
Conn.







*The Crescent Portland Cement Company, Wampum, Pa., have covered 20 buildings with approximately 205,000 sq. ft. of Bonanza "Cementile" Roofing.*



*Some of the buildings of the Boldt Glass Company, Huntington, W. Va. Six installations, requiring about 215,000 sq. ft. of Bonanza "Cementile," have been made for this company.*



One of the four  
Bonanza  
"Cementile"  
installations  
made for Heller  
& Merz of  
Newark, N. J.



Plant of  
Mutual  
Potteries,  
Trenton, N. J.  
Stone &  
Webster  
Const. Co.,  
Engineers and  
Contractors.







Bonanza  
"Cementile"  
Roof on the  
plant of Hall  
Steam Pump  
Co., Pitts-  
burgh, Pa



Bonanza Flat  
Tile Roofs of  
Fisher-Ohio  
Body Co.,  
Cleveland,  
Ohio. Albert  
Kahn, Archi-  
tect and Engi-  
neer; Thomp-  
son-Stearns  
Co., Contrac-  
tors. Two in-  
stallations  
have been  
made for this  
company

*Detroit &  
Windsor  
Dancing  
Pavilion, Bois  
Blanc Island,  
Ontario,  
Canada. 50,000  
sq. ft. of  
Bonanza  
"Cementile"  
were required.  
John Scott  
and Co.,  
Architects.*



*Interior view  
of Detroit &  
Windsor  
Dancing  
Pavilion. Note  
the Bonanza  
Sky-light Tile  
in the roof.*







*Plant of the  
North Pole Ice  
Co., Pitts-  
burgh, Pa.  
W. Griesser,  
Architect.*



*One of the five  
Bonanza  
"Cementile"  
installations  
made for the  
Edison  
Electric  
Illuminating  
Company,  
Brooklyn, N. Y.*

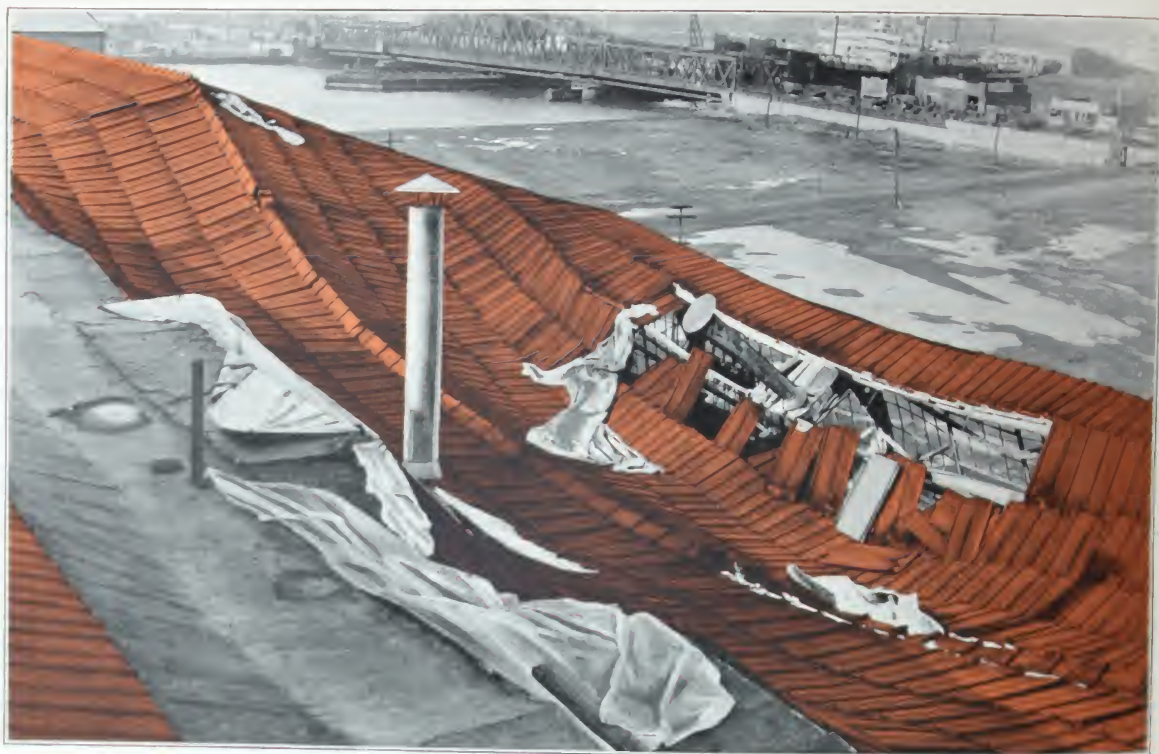


## BONANZA "CEMENTILE" ROOFING

One day after the fire at the plant of the Ford Motor Co., Kearney, N. J.

Albert Kahn, Architect and Engineer.

Twelve installations, totaling about 705,000 sq. ft. of Bonanza "Cementile" have been made for this company.



This picture was taken eight days after the fire referred to above. More than 60% of the "Cementile" came through the fire unharmed and were used again in roofing the rebuilt structure.







*Ford Motor  
Company  
building at  
Green Island.  
Albert Kahn,  
Architect and  
Engineer;  
Fred. T. Ley  
Co., Con-  
tractors.*



*Plant of  
American  
Motors Export  
Co., at Jack-  
sonville, Fla.  
Marsh &  
Saxelby,  
Architects.*



One of the five  
Bonanza  
"Cementile"  
installations  
for Pennsyl-  
vania R. R.,  
Lines West.  
Freight  
Terminal and  
Passenger  
Station  
at Indian-  
apolis, Ind.  
Latham &  
Walters,  
Contractors.



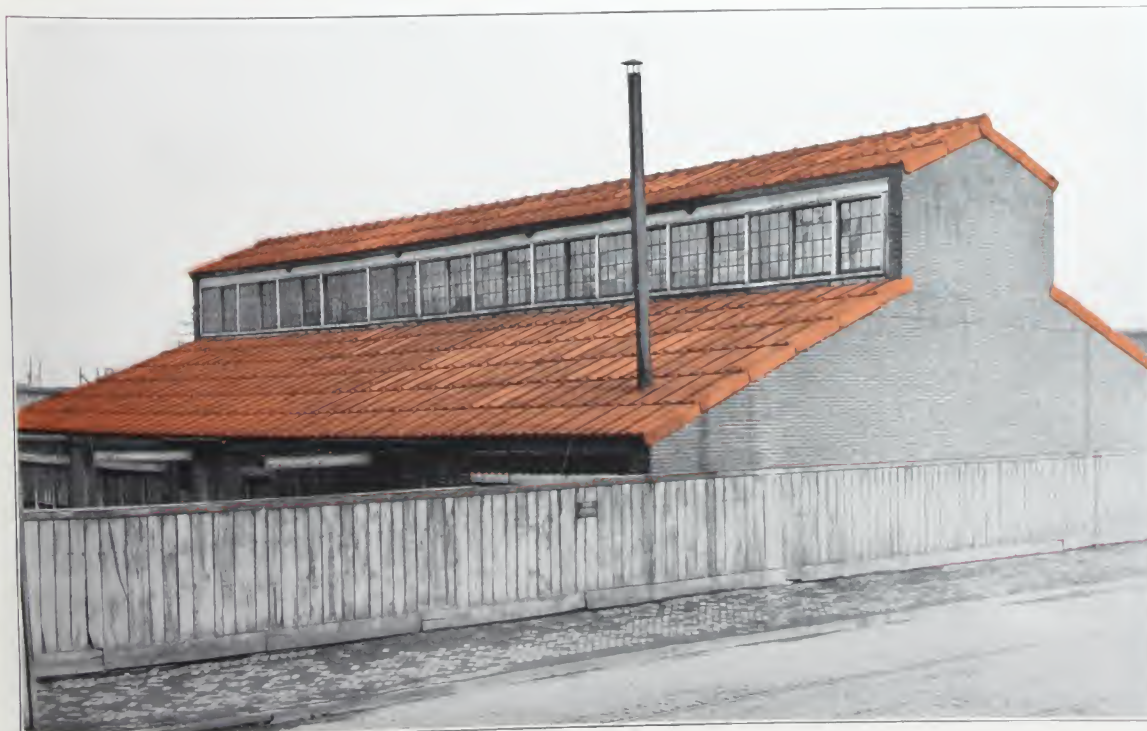
W. B. & A. Ry.  
Terminal at  
Baltimore,  
Md. Geo. A.  
Fuller Co.,  
Builders;  
Dreher,  
Churchman,  
Paul and Ford,  
Architects.







*Car Repair  
Shop of Inter-  
borough  
Railroad,  
Brooklyn, N. Y.  
Rosenthal  
Engineering  
Contracting  
Company,  
Contractors;  
New York State  
Transit  
Commission,  
Engineers.  
A total of  
approximately  
150,000 sq. ft.  
of Bonanza  
"Cementile"  
have been  
used by this  
company.*



*One of the two  
Bonanza  
"Cementile"  
installations  
made for  
Atlantic  
Refining Co.,  
Pittsburgh, Pa.*



*Bonanza Sky-light Tile on the garage of The Atlantic & Pacific Tea Company, Boston, Mass.*



*Garage of the Standard Oil Co. Newark, N. J. A total of eleven Bonanza "Cementile" installations have been made for this company.*







*Bonanza Flat Tile Roof on the Donaldson Garage, Pittsburgh, Pa. Hunting & Davis, Engineers. Two installations have been made for this company.*



*Showing the bottom side of Bonanza Flat Tile Roof. Warner-Quinlan Co., Warners, N.J.*



National  
Theatre,  
Brooklyn, N. Y.



Marcus Loew's  
Brevoort  
Theatre,  
Brooklyn, N. Y.







State Prison,  
Montgomery,  
Ala. M. J.  
Lide, Engi-  
neer. Six  
installations,  
totalling  
about 62,000  
sq. ft. of  
Bonanza  
"Cementile"  
have been  
used here.



Bonanza  
"Cementile"  
of special  
design and  
color, used on  
fifty-seven  
buildings  
along the  
Catskill  
aqueduct,  
New York City  
Water Works,  
Catskill Water  
Supply. Waldo  
Smith, Chief  
Engineer; H.  
Lincoln  
Rogers,  
Architect.

## BONANZA "CEMENTILE" ROOFING

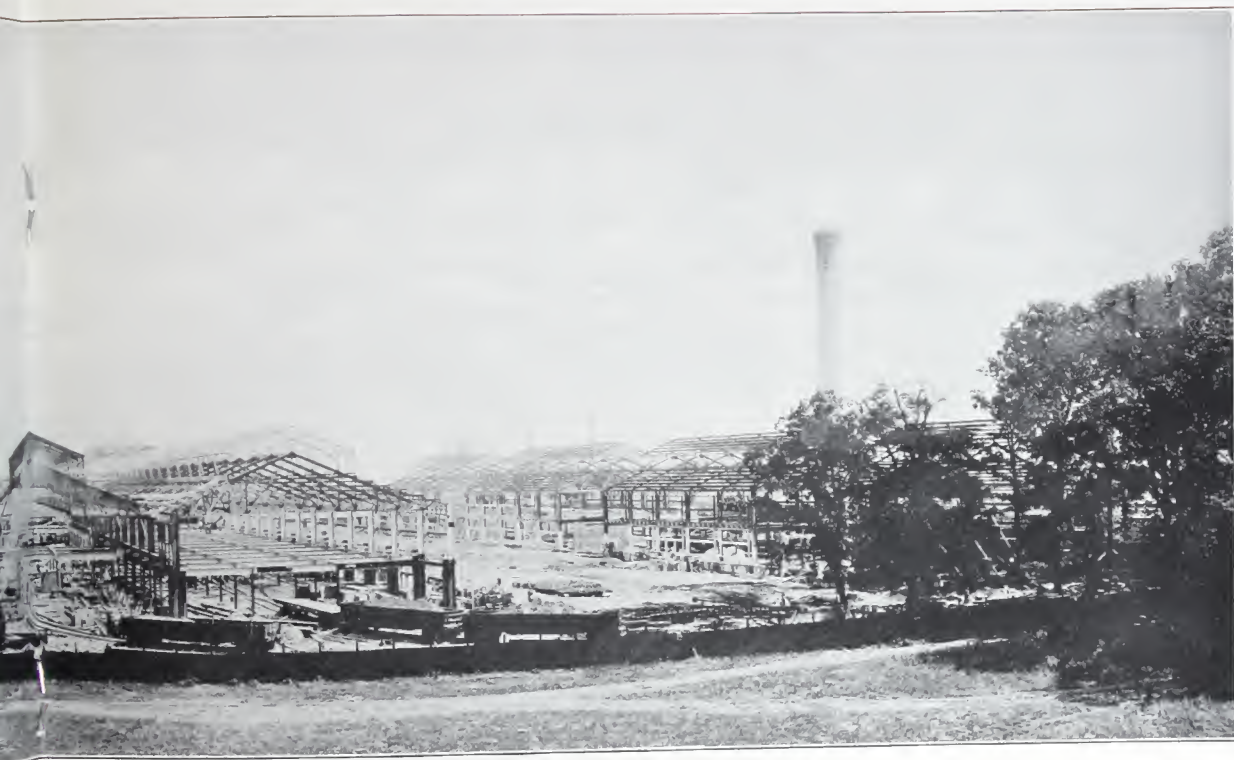
Plant of  
Baldwin  
Locomotive  
Works,  
Eddystone, Pa.  
Built for  
Remington  
Arms. Co.  
About 274,000  
sq. ft. of  
Bonanza  
"Cementile"  
were used.



Plant of  
Baldwin  
Locomotive  
Works,  
Eddystone, Pa.  
Built for  
Remington  
Arms. Co.  
About 274,000  
sq. ft. of  
Bonanza  
"Cementile"  
were used.







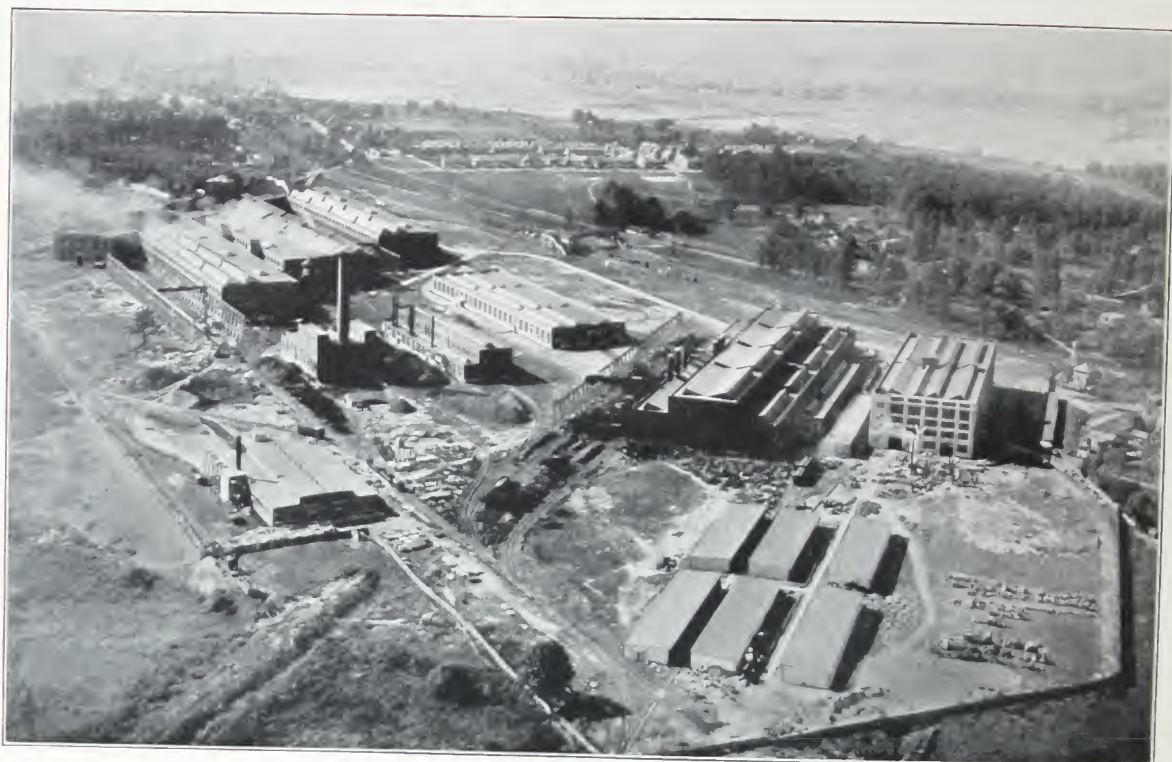
*This photograph was taken on July 10th, 1915—three weeks after the first "Cementile" were laid.*



*This photograph was taken on the day the work of roofing was completed; namely, October 10, 1915—exactly three months later than the above view.*



Aeroplane  
view of the  
Westinghouse  
Electric and  
Manufactur-  
ing Company  
plant at  
Essington, Pa.  
Bonanza Flat  
"Cementile"  
was used on  
these roofs.  
This company  
has used more  
than 900,000  
square feet of  
"Cementile"



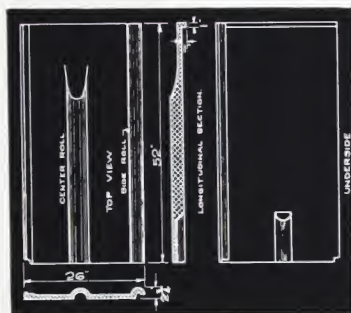
Bonanza  
Interlocking  
"Cementile"  
Roof of  
Thomas  
Spacing  
Machine Co.,  
Pittsburgh,  
Pa.  
Pittsburgh  
Bridge & Iron  
Works, Pitts-  
burgh, Pa.,  
Engineers and  
Contractors.





# Data Sheets

## Bonanza "Cementile" Roofing



Specifications for, and the application of Bonanza "Cementile," as well as suggestions for structural steel designing and detailing are given in the following pages. On page 64 will be found an index to the various designs illustrated.

Our Engineering Department will gladly submit additional details to meet conditions not shown, or furnish drawings showing complete purlin spacing for Bonanza "Cementile."

# Bonanza Interlocking Tile

## DATA

### Dimensions

Designed for pitched construction, forming in itself a finished, non-combustible, watertight roof.

### Weights

Thickness of tile . . . . . 1 inch  
Size of standard tile . . . . . 26x52 inches  
Weight per square foot . . . . . 14 pounds

Surface exposed to weather . . . . . 24x48 inches  
Number of tile per square of roof (100 sq.ft.) . . 12½  
Weight per square foot of finished roofing . . 16 pounds

### Construction

Tile are made of best Portland Cement and clean sharp sand, and properly reinforced. The reinforcing metal is thoroughly embedded and protected. The exposed surface of the tile is Indian red in color, and the underside has a patented smooth white finish.

### Load Tests

Bonanza Interlocking Tile are guaranteed to carry a uniformly distributed load of 250 pounds per square foot over a four-foot span. Actual tests show that tile at the age of two months carry as high as 350 pounds per square foot uniformly distributed load over a four-foot span before fracture.

The least desirable slope of roof is one-fifth pitch; by this is meant that the rise of roof is equal to one-fifth of the total span (41⅓ in. per foot).

For spacing of purlins for 35 ft. to 75 ft. spans, refer to page 40.

In laying out spacing for spans not given, always start at the eaves. See Plates 6 to 13 (pages 45 to 49), which show various eave conditions. Note that the bearing surface for the eave tile must be raised 1 in. in order to give the eave tile the same slope as the rest of the roof. After determining the eave space, use standard spacing of 3 ft. 10 in. to 4 ft. 0-½ in., placing short course, if any, at the ridge. For Ridge course, see Plate 14, and table on page 41. In cases where Monitors are used, provide construction as shown on Plates 15 to 19.

The short courses at the ridge can be varied from 1 ft. 4 in. to 3 ft. 8 in.; see Plate 14.

To eliminate courses shorter than 1 ft. 4 in., use special 60 in. tile for eave course and adjacent course; see Plate 9.

### Roof Design

The roof purlins should in all cases be channels or I-beams. The size recommended is given on Plate 5. For safe load on Channels and Beams see table on page 42.

All purlins must be straight and held in alignment by the use of sag rods. One line of sag rods is to be used for bays up to 16 ft. span. For longer spans two lines are used. See Plate 5. Where purlins are framed into trusses, they should be placed so that the top flanges will be not less than 1½ in. above the truss.

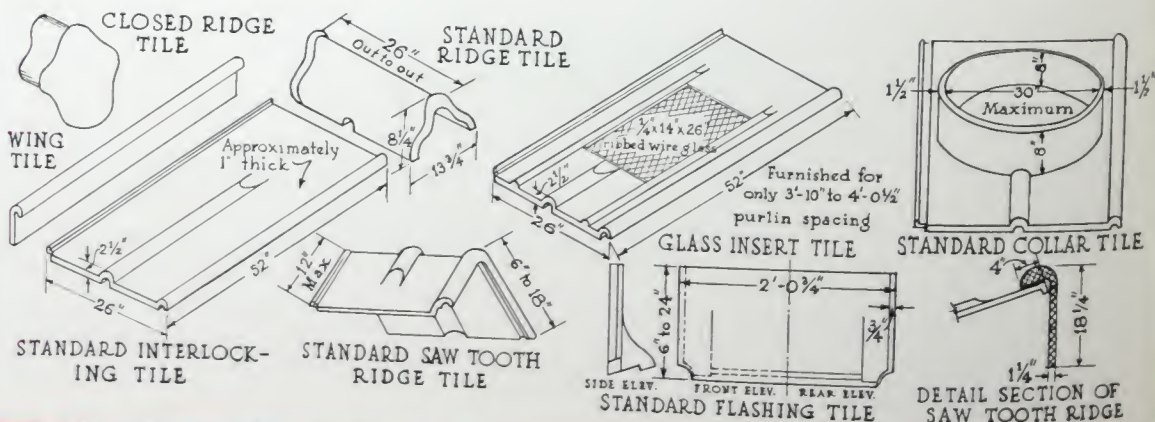
Where End Finishing Tile are used at the gables, the wall is slotted in line with the purlins to provide proper support for the tile; see Plate 27.

Where the gable walls extend above the roof line, flashing connection may be made with a chase at least 4"x4" filled with cement mortar—or omit chase and use cap and base metal flashing. See Plates 28 and 29 for additional flashing details.

In designing roof trusses, use total load of 45 pounds per square foot unless otherwise specified by building codes.

### Glass Insert

### Tile





# Bonanza Interlocking Tile

## SPECIFICATIONS

All roofs throughout, except where otherwise shown or noted, to be Reinforced Interlocking Cement Tile, Bonanza "Cementile" Brand as manufactured by the American Cement Tile Manufacturing Company of Pittsburgh, New York and Birmingham, Ala.; all tile to be furnished and erected by the Manufacturers.

The Standard Interlocking Tile to be 26"x52", 1" thick through the flat portion. The exposed weather surface to be 24"x48".

Tile to be made from clean, sharp and comparatively coarse Sand and approved Portland Cement. Tile to be reinforced throughout with galvanized wire mesh placed approximately  $\frac{3}{8}$ " from under surface, and thoroughly embedded and protected.

The exposed surface of the tile to be finished in red color of best quality and the under side to be finished with patented white surface, these surfaces to be parts of the tile and not a wash or paint applied after the tile is made. The tile shall present a smooth top surface, free from holes or depressions.

Tile must not weigh over 16 lbs. per square foot and must be thoroughly seasoned to safely stand a uniformly distributed load of 250 lbs. per square foot when tested on supports 4 ft. apart; tests to be made from tile chosen at random from stock.

The tile to be self fastening and held in place by a hanger at the upper end, and laid on purlins spaced as recommended by the Manufacturer. In addition, the tile to interlock at the side by means of a roll and rabbet, which are to be integral parts of the tile, and overlap not less than 4 in. on the tile below.

The Gable ends of the building to be finished with End Finish Tile; namely, a wing 8 in. wide made of the same material as the Standard Interlocking Tile, which lay flat against the end walls of the building. On gable ends where walls extend above the roof level, a metal flashing, or 4"x4" chase at the line of the top purlins, to be provided for the reception of the tile.

The ridge to be finished with an Interlocking Ridge Roll of the same material as the Standard Tile.

Where Hips are used, finish with Interlocking Hip Roll, of same material as Standard Tile, laid in Portland Cement, to fit tightly on main roof. Owners to provide a bearing flush with the tops of the purlins at the hips, to properly support the roof tile.

Glass Insert Tile to be furnished for lighting, and located as directed by the owner. Glass Insert Tile to be of similar construction as the Standard Interlocking Tile. The glass is to be either 20"x37" or 14"x25",  $\frac{1}{4}$  wire ribbed, imbedded in plastic cement so as to be replacable in case of breakage.

The gutters to be formed with Standard Reinforced Flat Tile. Grading and Waterproofing to be provided by owners.

Flashing Tile to be of the same material as the Standard Interlocking Tile. Proper support for same to be provided by owner, subject to the approval of the Manufacturers. All metal flashing to be provided by the owners.

All tile when laid to be properly pointed with Lastik Cement at joints, and to be watertight and weather proof under general service conditions.

*Dimensions*

*Material*

*Tile Surfaces*

*Weight and Tests*

*Application*

*End Finish*

*Ridge*

*Hips*

*Glass*

*Gutters*

*Flashing*

*Pointing*

# Bonanza Flat Tile

## D A T A

*Dimensions*

Designed for flat or pitched construction; made watertight by the application of some standard composition covering.

*Weights*

Thickness of tile.....	1½ inches
Size of standard tile.....	24x60 inches
Surface exposed.....	24x60 inches
Weight per square foot.....	16 pounds
Weight per square of roof.....	1600 pounds

*Construction*

Special tile are furnished for spans over or under 60 inches, and for flashing.

*Load Tests*

Tile are made of best Portland Cement and clean, sharp sand, and properly reinforced.

*Roof Design*

Bonanza Flat Tile are guaranteed to carry a uniformly distributed load of 200 pounds per square foot over a span of 5 ft.

Bonanza Flat Tile are laid on I-beam purlins spaced 5 ft. center to center; see Plates 38, 39 and 40. Special tile are furnished for spacings over and under 60 in., and for flashing. The size of purlins recommended is given on Plate 38. Channels of equivalent strength having a flange width of not less than 2½ in. may be used. After tile are laid the joints are properly pointed.

## S P E C I F I C A T I O N S

All roofs throughout, except where otherwise shown or noted, to be Reinforced Flat Tile, Bonanza "Cementile" Brand as manufactured by the American Cement Tile Manufacturing Company of Pittsburgh, New York and Birmingham, Ala.; all tile to be furnished and erected by the Manufacturers.

*Dimensions*

The Standard Flat Tile to be 24 in. wide by 60 in. long and of a uniform thickness of 1½ in. throughout.

The tile to be laid on purlins having not less than 2½ in. flange width, spaced as recommended by the Manufacturers. Recesses to be provided at ends of all tile to hold them secure.

*Material*

Tile to be made from clean, sharp and comparatively coarse sand and approved Portland Cement. Tile to be properly reinforced, with the reinforcement placed approximately ⅜" from the underside, and thoroughly imbedded and protected.

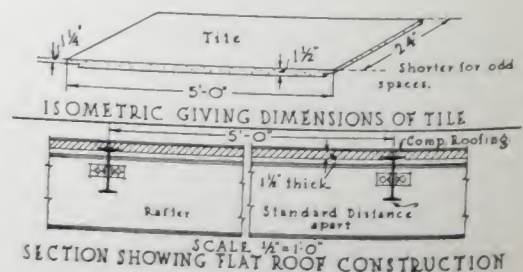
*Weight and Tests*

The tile must not weigh over 16 lbs. per square foot, and must be thoroughly seasoned to safely stand a uniformly distributed load of 200 lbs. per square foot when tested on supports 5 ft. apart; tests to be made from tile chosen at random from stock.

*Pointing  
Water-  
proofing*

All tile to be of uniform thickness so as to match evenly at the joints. Joints to be pointed with Lastik Cement so as to provide a smooth surface ready for the application of the composition roofing, which is to be applied with a high melting point adhesive. Where grading to downspouts is necessary, same is to be provided by the owners.

*Isometric  
Views*





# Bonanza Channel Tile

## DATA

Designed for extra-wide-span flat or pitched construction, and for saw-tooth roofs; made watertight by the application of some standard composition covering.

Depth of tile.....	3 $\frac{3}{4}$ inches
Thickness of tile.....	Flanges 1 $\frac{5}{8}$ " Web 1 inch
Size of standard tile.....	18x96 inches
Surface exposed.....	18x96 inches
Weight per square foot.....	20 $\frac{1}{2}$ pounds
Weight per square of roof.....	2050 pounds

Special tile are furnished for spans over or under 96".

Tile are made of best Portland Cement and clean, sharp sand, and properly reinforced.

Bonanza Channel Tile are guaranteed to carry a uniformly distributed load of 200 pounds per square foot over a span of 8 ft.

Bonanza Channel Tile are laid on I-beam purlins spaced 8 ft. center to center. See Plate 41. Special tile are furnished for spans over or under 96". After tile are laid, joints are properly pointed.

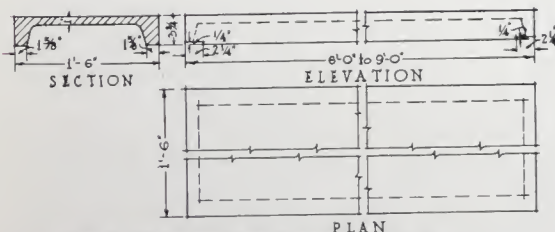
## SPECIFICATIONS

All roofs throughout, except where otherwise shown or noted, to be Reinforced Channel Tile, Bonanza "Cementile" Brand as manufactured by the American Cement Tile Manufacturing Company of Pittsburgh, New York, and Birmingham, Ala.; all tile to be furnished and erected by the Manufacturers.

Standard Channel Tile to be 18 in. wide by 96 in. long with ribs at sides and ends of proper proportions. The web between the ribs to be not less than 1 in. in thickness. The tile to be laid on purlins spaced as recommended by the Manufacturers. Recesses to be provided at ends of all tile to hold them secure.

Tile to be made from clean, sharp and comparatively coarse sand and approved Portland Cement. Tile to be properly reinforced with the reinforcement placed approximately  $\frac{3}{8}$  in. from the underside, and thoroughly imbedded and protected.

The tile must not weigh over 20 $\frac{1}{2}$  lbs. per square foot, and must be thoroughly seasoned to safely stand a uniformly distributed load of 200 lbs. per square foot when tested on supports 8 ft. apart; tests to be made from tile chosen at random from stock.



3/4" SCALE DETAIL OF CHANNEL TILE.

All tile to be of uniform thickness so as to match evenly at the joints. Joints to be pointed with Lastik Cement so as to provide a smooth surface ready for the application of the composition roofing, which is to be applied with a high melting point adhesive. Where grading to downspouts is necessary, same is to be provided by the owners.

Dimensions

Weights

Construction

Load Tests

Roof Design

Dimensions

Material

Weight  
and Tests

Pointing  
Water-  
proofing

Isometric  
Views

# Bonanza "Cementile" Roofing

## PURLIN SPACING

For Spans  
35 ft. to 75 ft.

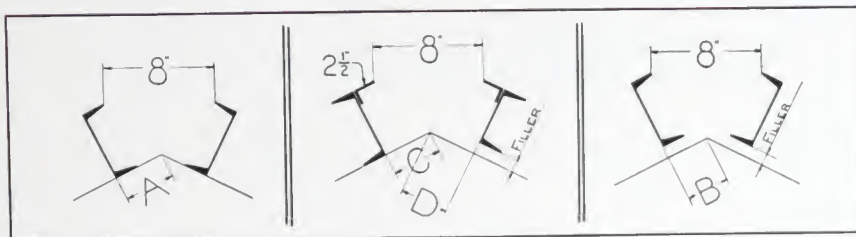


Span Feet	Eave	Intermediate	Ridge	Eave	Intermediate	Ridge
35	3'-7"	3@4'-0 1/4"	2'-8"	3'-7"	3@4'-0 1/4"	3'-4 3/8"
36	3'-7"	3@3'-11 3/4"	3'-4"	3'-7"	3@4'-0"	3'-11 7/8"
37	3'-7"	3@3'-11 7/16"	3'-11 7/16"	4'-3"	3@3'-11 3/4"	3'-11 3/8"
38	3'-11"	3@4'-0"	4'-0"	4'-3"	1@4'-8 1/4"	3@3'-11"
39	4'-3"	1@4'-4 1/8"	3@3'-11 1/2"	3'-7"	4@4'-0"	1'-8"
40	4'-3"	1@4'-8 3/8"	3@4'-0 1/4"	3'-7"	4@3'-11 3/4"	2'-3 3/4"
41	3'-7"	4@4'-0"	1'-11 1/2"	3'-7"	4@4'-0 1/4"	2'-8 1/2"
42	3'-7"	4@3'-11 1/2"	2'-8"	3'-7"	4@4'-0"	3'-4 1/8"
43	3'-7"	4@4'-0"	3'-0 1/2"	3'-7"	4@3'-11 3/4"	3'-11 7/8"
44	3'-7"	4@3'-11"	3'-11"	4'-3"	4@3'-11 1/2"	3'-11 5/8"
45	3'-7"	4@4'-0 1/4"	4'-0 1/4"	4'-3"	1@4'-4 1/4"	4@4'-0"
46	4'-3"	4@4'-0"	4'-0"	3'-7"	5@3'-11 7/8"	1'-7 5/8"
47	4'-3"	1@4'-4 3/8"	4@4'-0 1/2"	3'-7"	5@3'-11 1/2"	2'-4 1/4"
48	3'-7"	5@4'-0 1/8"	1'-8 1/8"	3'-7"	5@4'-0 1/8"	2'-8 1/8"
49	3'-7"	5@4'-0"	2'-3 1/4"	3'-7"	5@3'-11 7/8"	3'-3 3/4"
50	3'-7"	5@4'-0 1/4"	2'-8 1/2"	3'-7"	5@3'-11 5/8"	3'-11 3/4"
51	3'-7"	5@4'-0"	3'-4 1/4"	3'-11"	5@4'-0 1/8"	4'-0 1/4"
52	3'-7"	5@3'-11 3/4"	3'-11 7/8"	4'-3"	1@4'-4"	5@3'-11 7/8"
53	3'-11"	5@4'-0 1/8"	4'-0 1/8"	3'-7"	6@3'-11 3/4"	1'-7 1/2"
54	4'-3"	1@4'-3 5/8"	5@4'-0"	3'-7"	6@4'-0 1/8"	2'-0 1/4"
55	3'-7"	6@3'-11 1/8"	1'-8"	3'-7"	6@4'-0"	2'-7 3/8"
56	3'-7"	6@4'-0"	2'-0 1/2"	3'-7"	6@3'-11 3/4"	3'-3 5/8"
57	3'-7"	6@3'-11 7/8"	2'-7 3/4"	3'-7"	6@4'-0 1/8"	3'-8"
58	3'-7"	6@4'-0 1/4"	3'-0"	3'-11"	6@3'-11 1/8"	3'-11 1/8"
59	3'-7"	6@4'-0"	3'-8"	4'-3"	6@4'-0 3/8"	4'-0 1/8"
60	3'-11"	6@3'-11 3/4"	3'-11 7/8"	3'-7"	7@3'-11 1/8"	1'-7 1/8"
61	4'-3"	6@4'-0 1/8"	4'-0 1/8"	3'-7"	7@4'-0"	1'-11 5/8"
62	4'-3"	1@4'-8"	6@3'-11 7/8"	3'-7"	7@3'-11 3/4"	2'-8"
63	3'-7"	7@3'-11 3/4"	1'-11 1/2"	3'-7"	7@4'-0 1/8"	3'-0 1/8"
64	3'-7"	7@4'-0"	2'-4 1/4"	3'-7"	7@4'-0"	3'-7 1/4"
65	3'-7"	7@3'-11 7/8"	2'-11 5/8"	3'-7"	7@4'-0 3/8"	4'-0 3/8"
66	3'-7"	7@4'-0 3/8"	3'-4"	4'-3"	7@4'-0 1/8"	4'-0 1/8"
67	3'-7"	7@4'-0"	3'-11 5/8"	4'-3"	1@4'-7 7/8"	7@4'-0"
68	4'-3"	7@3'-11 3/4"	3'-11 7/8"	3'-7"	8@3'-11 7/8"	1'-11 5/8"
69	4'-3"	1@4'-4 1/8"	7@4'-0 1/8"	3'-7"	8@4'-0 1/8"	2'-4 1/4"
70	3'-7"	8@3'-11 7/8"	1'-8"	3'-7"	8@4'-0"	3'-0"
71	3'-7"	8@4'-0 1/8"	2'-0"	3'-7"	8@3'-11 7/8"	3'-7 5/8"
72	3'-7"	8@4'-0"	2'-8"	3'-7"	8@4'-0 3/8"	3'-11 7/8"
73	3'-7"	8@3'-11 7/8"	3'-3 1/2"	4'-3"	8@4'-0"	4'-0 1/8"
74	3'-7"	8@4'-0 1/8"	3'-8"	4'-3"	1@4'-7 7/8"	8@3'-11 7/8"
75	3'-11"	8@4'-0"	3'-11 3/8"	3'-7"	9@4'-0 1/8"	1'-8 3/8"



# Bonanza "Cementile" Roofing

## RIDGE PURLINS



FIGURES BELOW HEAVY LINES ARE FOR C. & D.

	C	A	Flange Width	Distance B with Fillers		
				1/4"	1/2"	3/4"
1/6 Pitch 4" in 12"	5	4 1/4	1.75	4 1/16	4 1/4	4
	6	4 1/8	1.92	4 1/8	3 1/2	3 7/8
	7	3 1/2	2.09	3 7/8	3 3/4	3 1/2
	8	3 3/4	2.26	3 1/2	3 5/8	3 1/2
	9	3 5/8	2.43	3 1/8	3 1/8	3 3/8
	10	3 1/8	2.60	3 3/4	3 1/4	3 3/8
1/5 Pitch 4 1/8" in 12"	5	4 1/8	1.75	3 1/8	3 7/8	3 3/4
	6	3 1/2	1.92	3 3/4	3 5/8	3 1/2
	7	3 1/8	2.09	3 1/2	3 3/8	3 1/8
	8	3 3/8	2.26	3 1/4	3 1/8	3 1/8
	9	3 1/8	2.43	3 1/8	2 1/2	2 1/2
	10	2 7/8	2.60	2 1/2	2 1/2	2 1/2
1/4.8 Pitch 5" in 12"	5	4	1.75	3 7/8	3 3/4	3 1/2
	6	3 3/4	1.92	3 5/8	3 3/8	3 1/8
	7	3 1/2	2.09	3 3/8	3 1/4	3 1/8
	8	3 3/8	2.26	3 1/8	3	2 7/8
	9	3	2.43	2 7/8	2 3/4	2 1/2
	10	2 5/8	2.60	2 1/2	2 1/8	2 5/8
1/4 Pitch 6" in 12"	5	3 1/2	1.75	3 3/8	3 1/8	3 5/8
	6	3 3/8	1.92	3 1/4	3 1/8	3
	7	3	2.09	2 7/8	2 3/4	2 5/8
	8	2 1/2	2.26	2 1/8	2 1/8	2 1/8
	9	2 1/8	2.43	2 1/8	2 1/8	2
	10	1 1/2	2.60	1 1/2	1 1/2	1 1/2
1/3 Pitch 8" in 12"	5	3 1/8	1.75	3 1/8	2 7/8	2 1/2
	6	2 3/4	1.92	2 1/8	2 3/8	2 1/8
	7	2 1/8	2.09	2 1/4	2 1/4	2 1/8
	8	1 1/2	2.26	1 3/4	1 5/8	1 1/8
	9	1 1/4	2.43	1 1/8	1 1/8	1 1/8
	10	5/8	2.60	1/8	1/4	1/8

1/6 Pitch

1/5 Pitch

1/4.8 Pitch

1/4 Pitch

1/3 Pitch

Fillers

# Safe Loads in Tons Uniformly Distributed



*Weight of Beams and Channels Included  
Maximum Fiber Stress 16000 lbs. per sq. in.*

*I-Beams*

Size	Weight, Pounds	Flange, Width	I-BEAMS											
			SPAN IN FEET											
			14	15	16	17	18	19	20	21	22	23	24	25
5"	9 75	3 "	1 84	1 72	1 61	1 52	1 43	1 36	1 29	1 32				
6"	12 25	3 <sup>3</sup> / <sub>8</sub> "	2 77	2 58	2 42	2 28	2 15	2 04	1 94	1 85				
7"	15 00	3 <sup>5</sup> / <sub>8</sub> "	3 94	3 68	3 45	3 25	3 07	2 91	2 76	2 63				
8"	18 00	4 "	5 42	5 06	4 74	4 46	4 21	3 99	3 79	3 61	3 45	3 30	3 16	3 04
9"	21 00	4 <sup>3</sup> / <sub>8</sub> "	7 19	6 71	6 29	5 92	5 59	5 30	5 03	4 79	4 58	4 38	4 19	4 03
10"	25 00	4 <sup>5</sup> / <sub>8</sub> "	9 30	8 68	8 14	7 66	7 24	6 86	6 51	6 20	5 92	5 66	5 43	5 21
12"	31 50	5 "	13 70	12 80	12 00	11 03	10 70	10 10	9 59	9 14	8 72	8 34	7 99	7 67

CHANNELS

*Channels*

5"	6 50	1 <sup>3</sup> / <sub>4</sub> "	1 13	1 05	.99	.93	.88	.83	.79					
6"	8 00	2 "	1 65	1 54	1 44	1 36	1 28	1 22	1 16					
7"	9 75	2 <sup>1</sup> / <sub>4</sub> "	2 39	2 23	2 09	1 96	1 86	1 76	1 67	1 59	1 52	1 45	1 39	1 34
8"	11 25	2 <sup>1</sup> / <sub>2</sub> "	3 08	2 87	2 69	2 53	2 39	2 27	2 15	2 05	1 96	1 87	1 79	1 72
9"	13 25	2 <sup>1</sup> / <sub>2</sub> "	4 01	3 74	3 51	3 30	3 12	2 95	2 81	2 67	2 55	2 44	2 34	2 24
10"	15 00	2 <sup>5</sup> / <sub>8</sub> "	5 10	4 76	4 46	4 20	3 96	3 76	3 57	3 40	3 24	3 10	2 97	2 85
12"	20 50	3 "	8 14	7 59	7 12	6 70	6 33	5 99	5 70	5 42	5 18	4 95	4 55	4 56



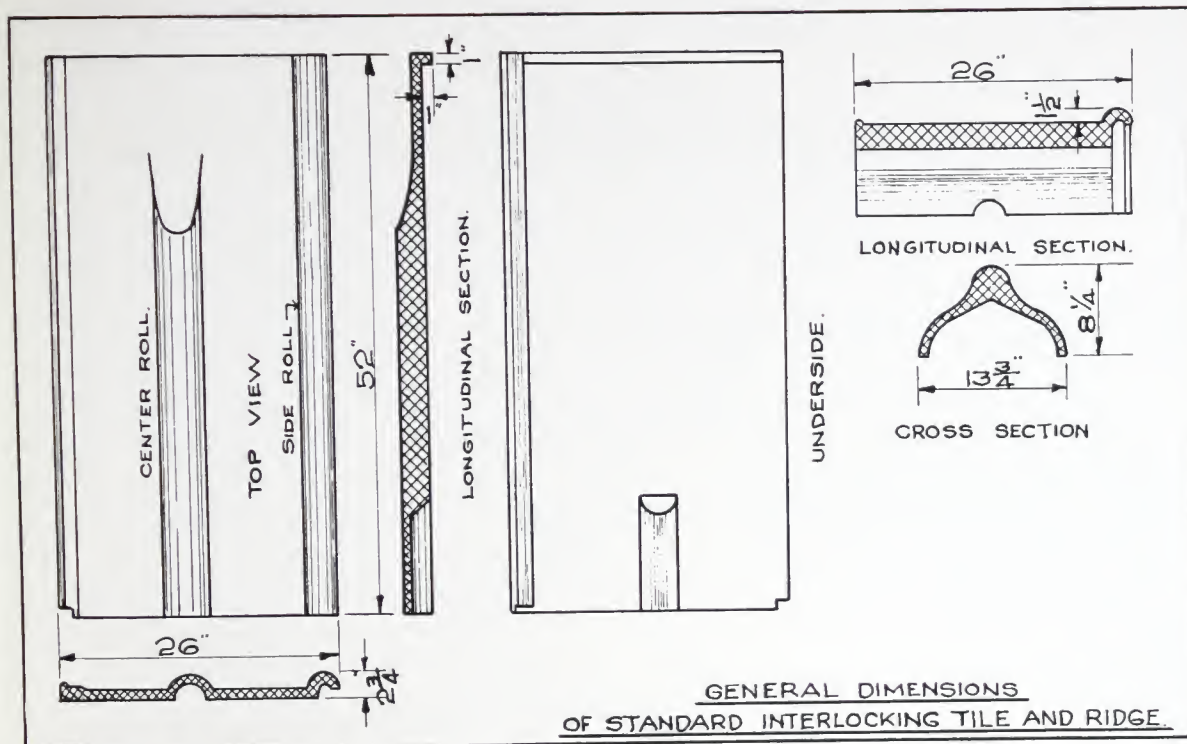


Plate 1

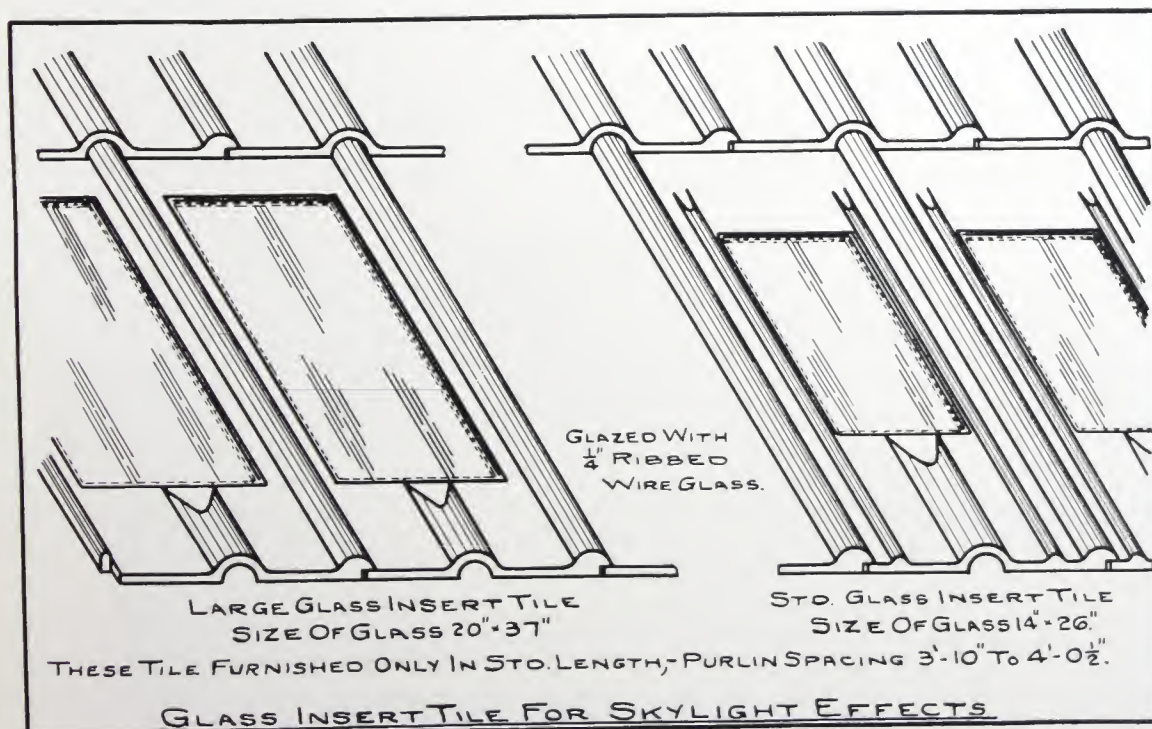


Plate 2



Plate 3

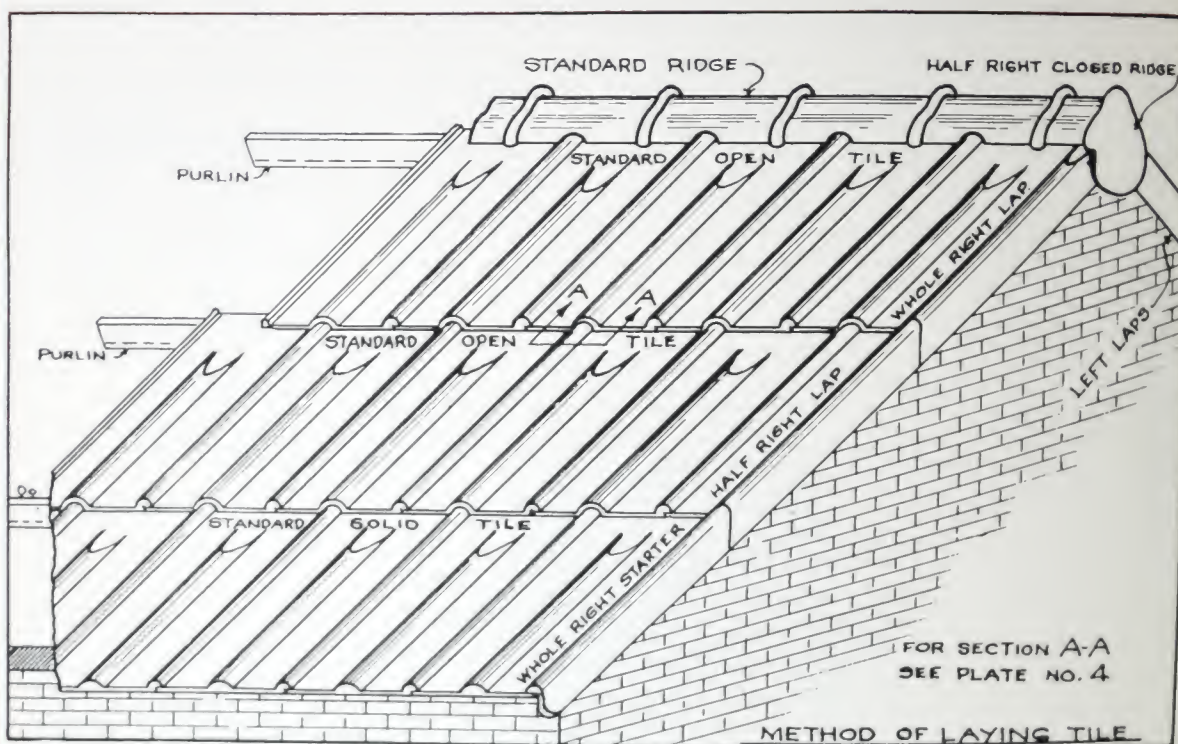
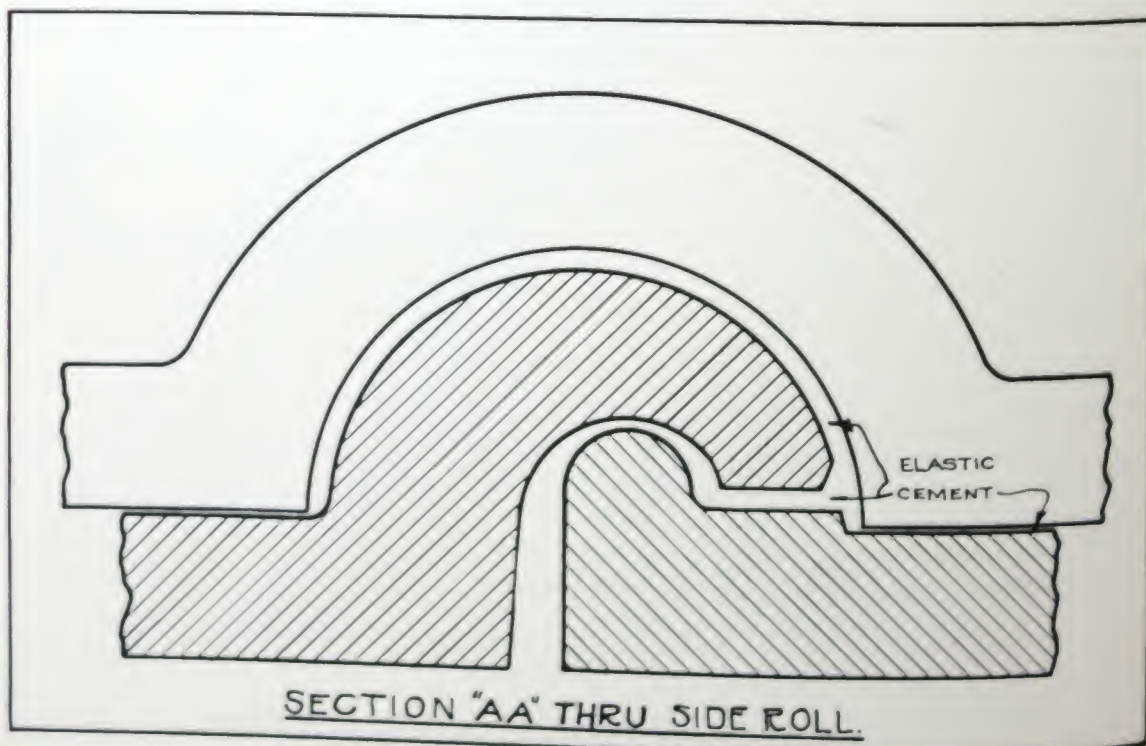


Plate 4





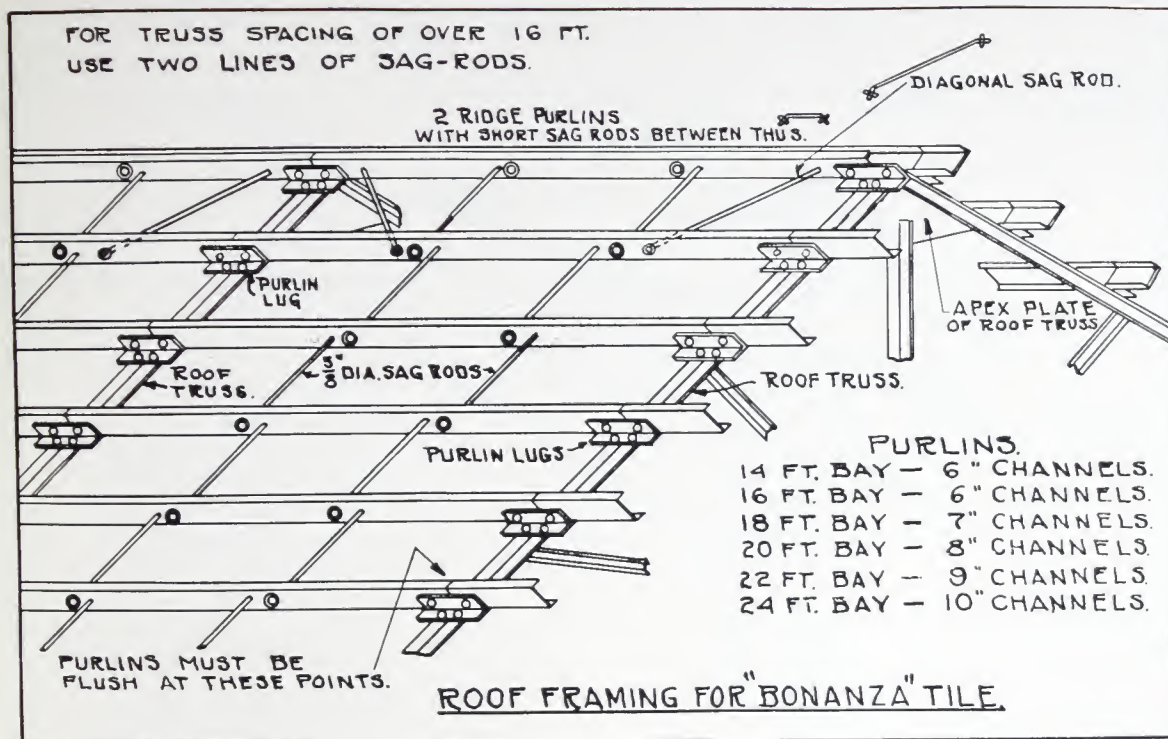


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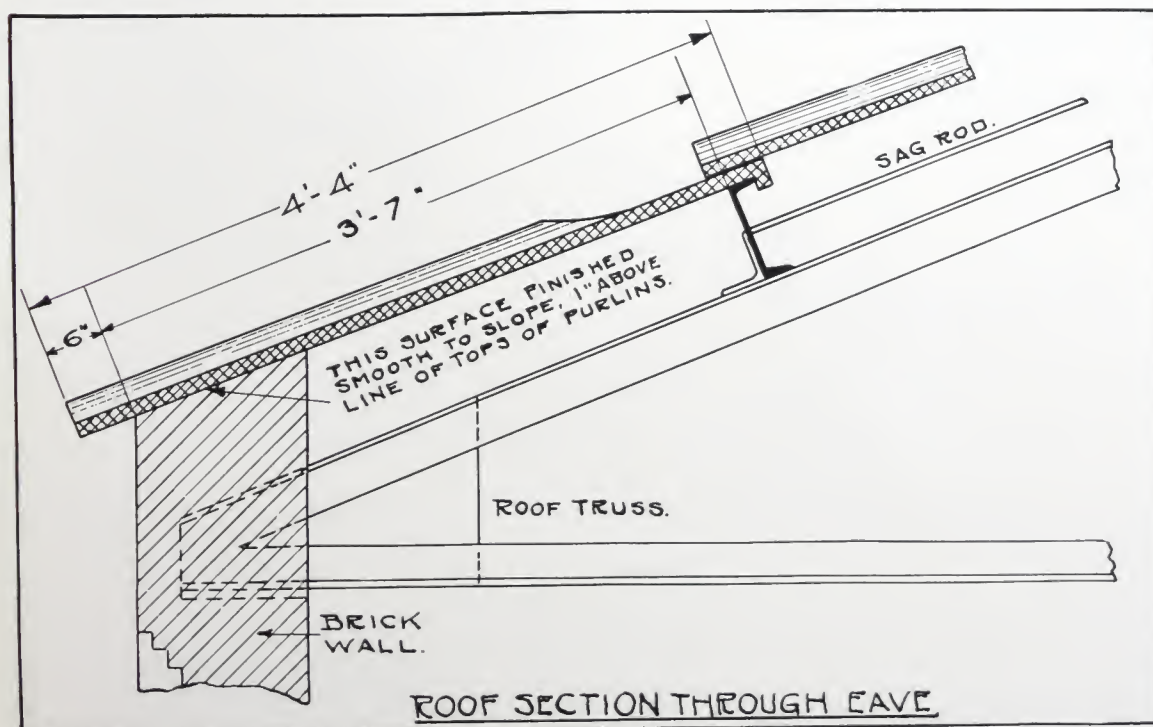


Plate 6

Plate 7

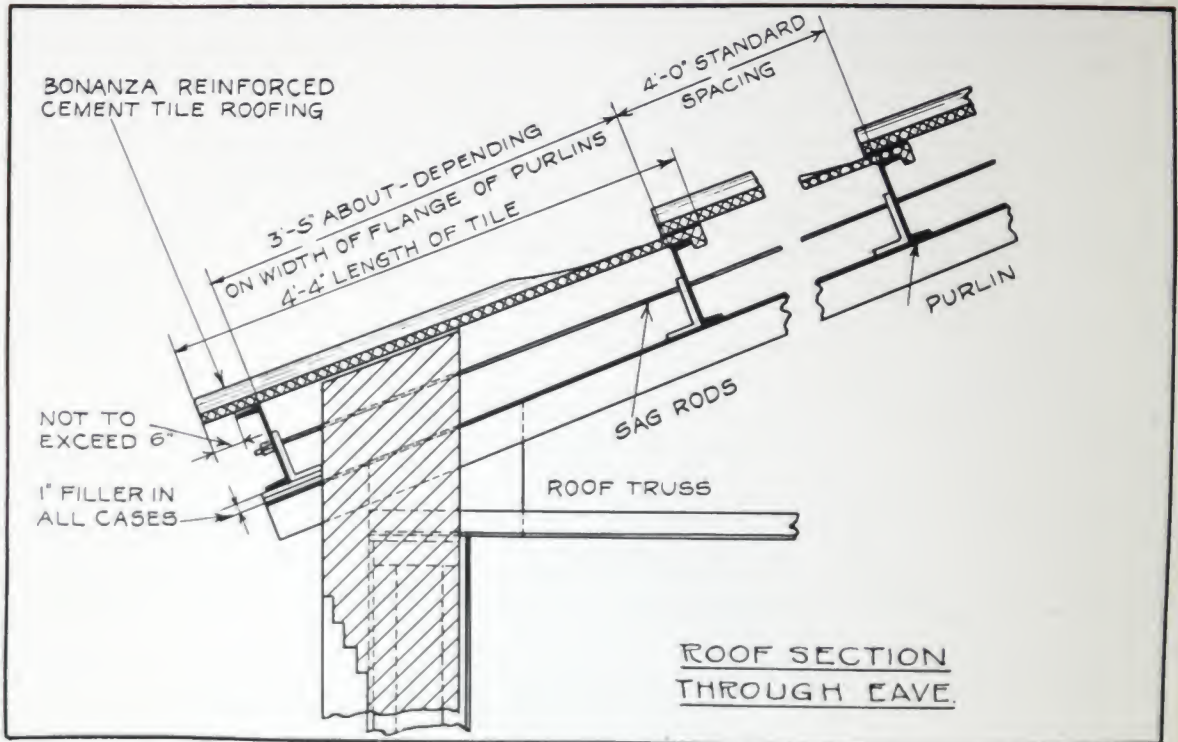
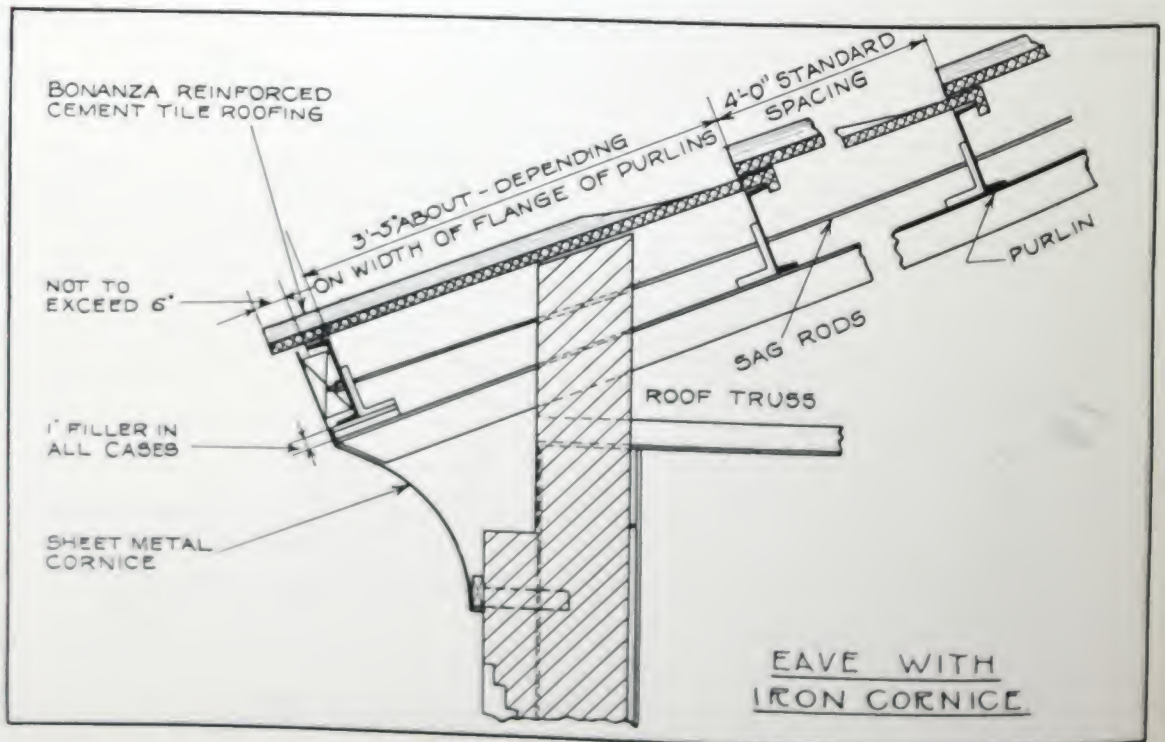


Plate 8





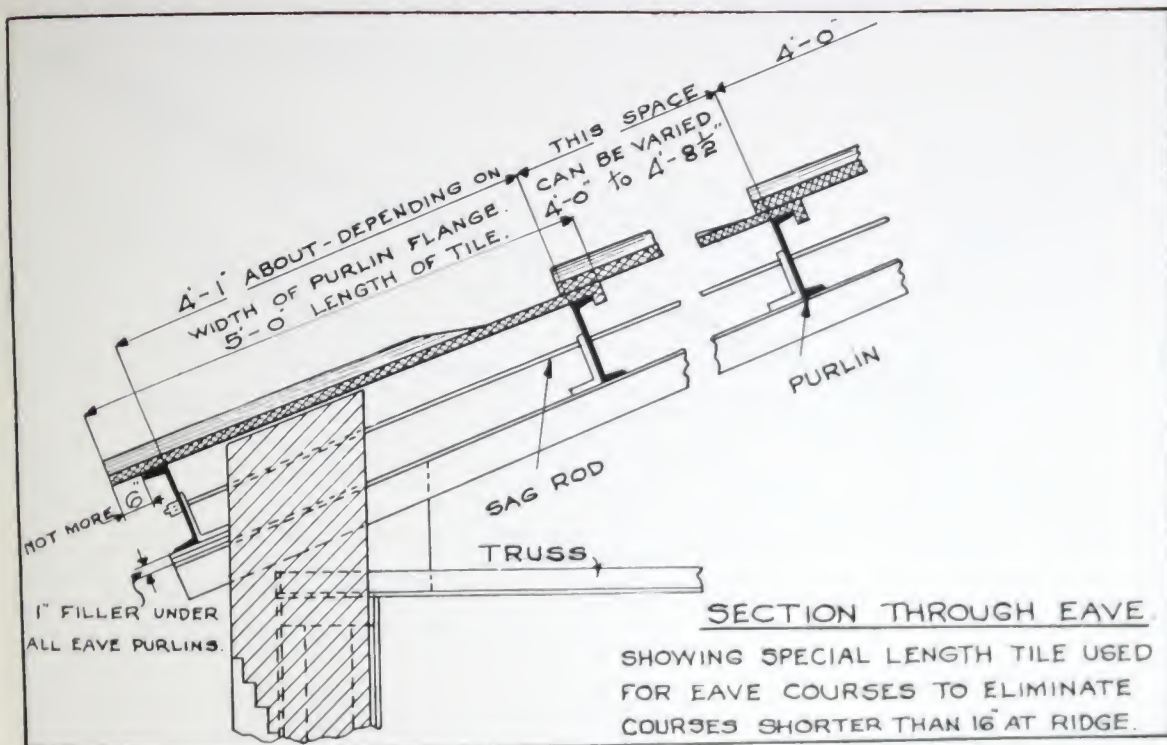


Plate 9

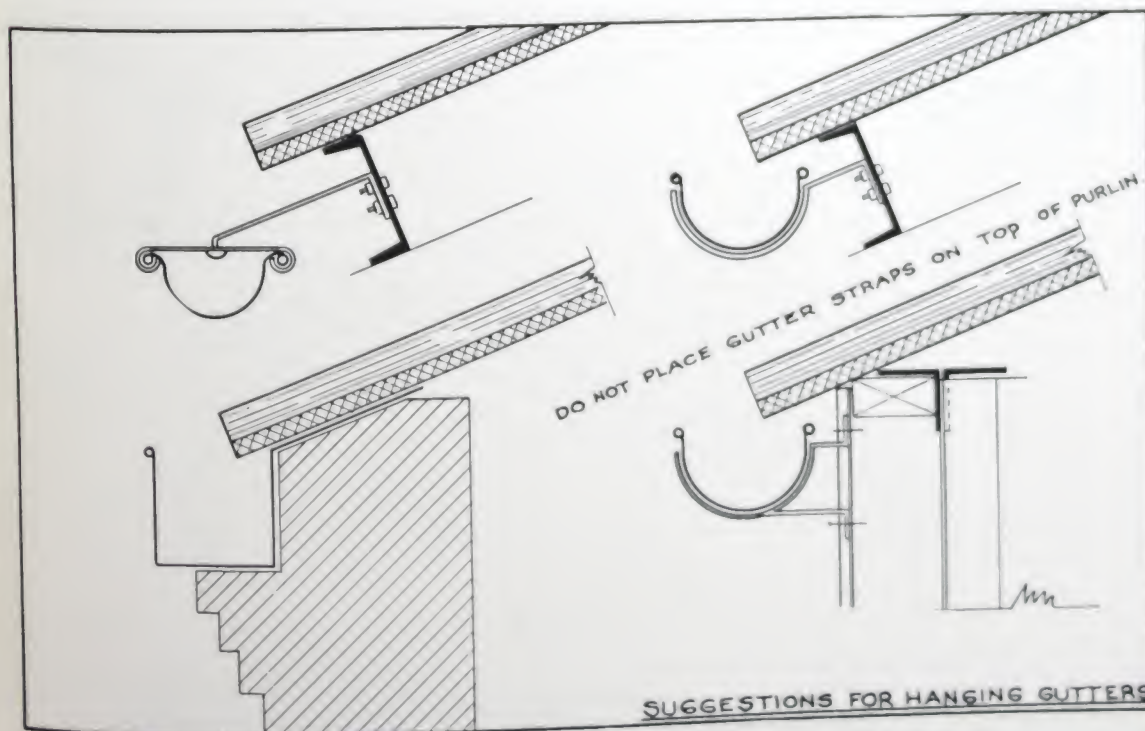


Plate 10

Plate 11

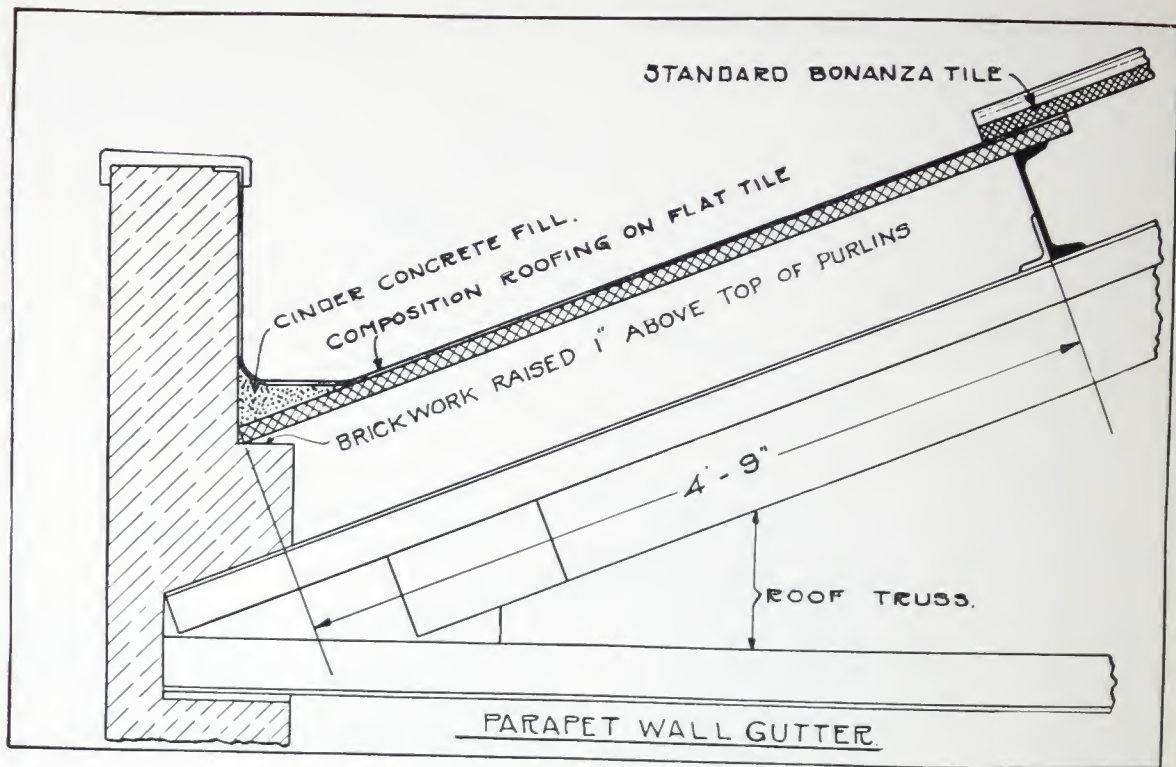


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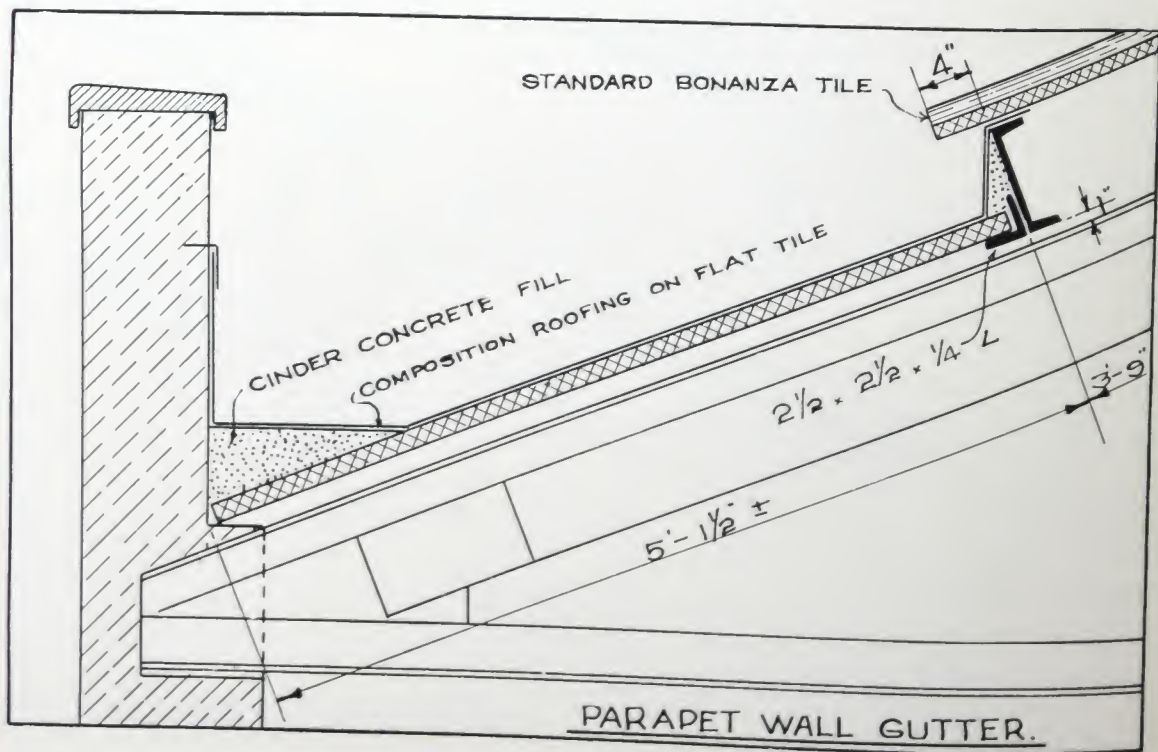




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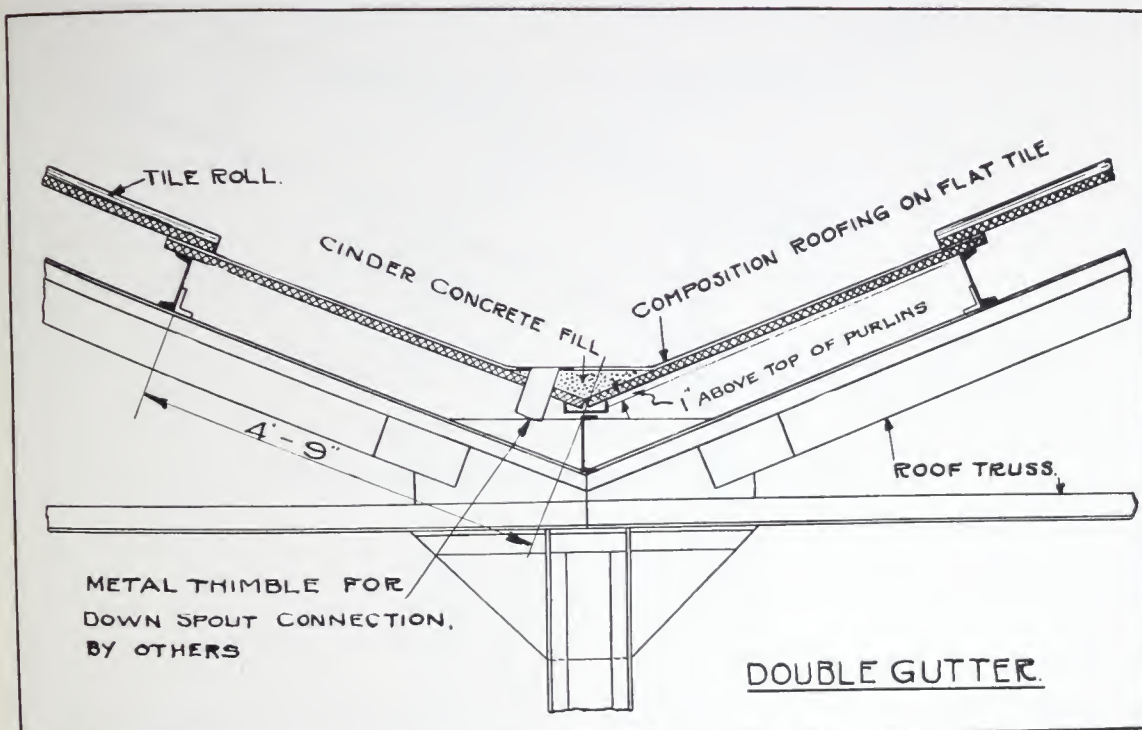


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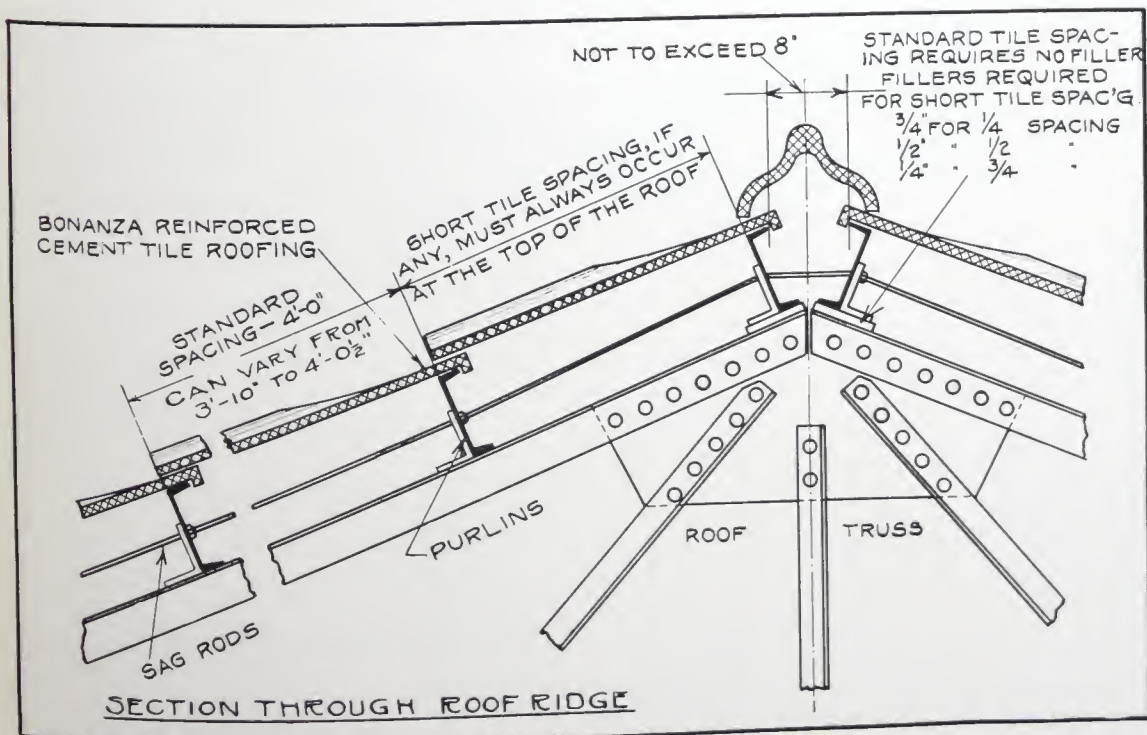


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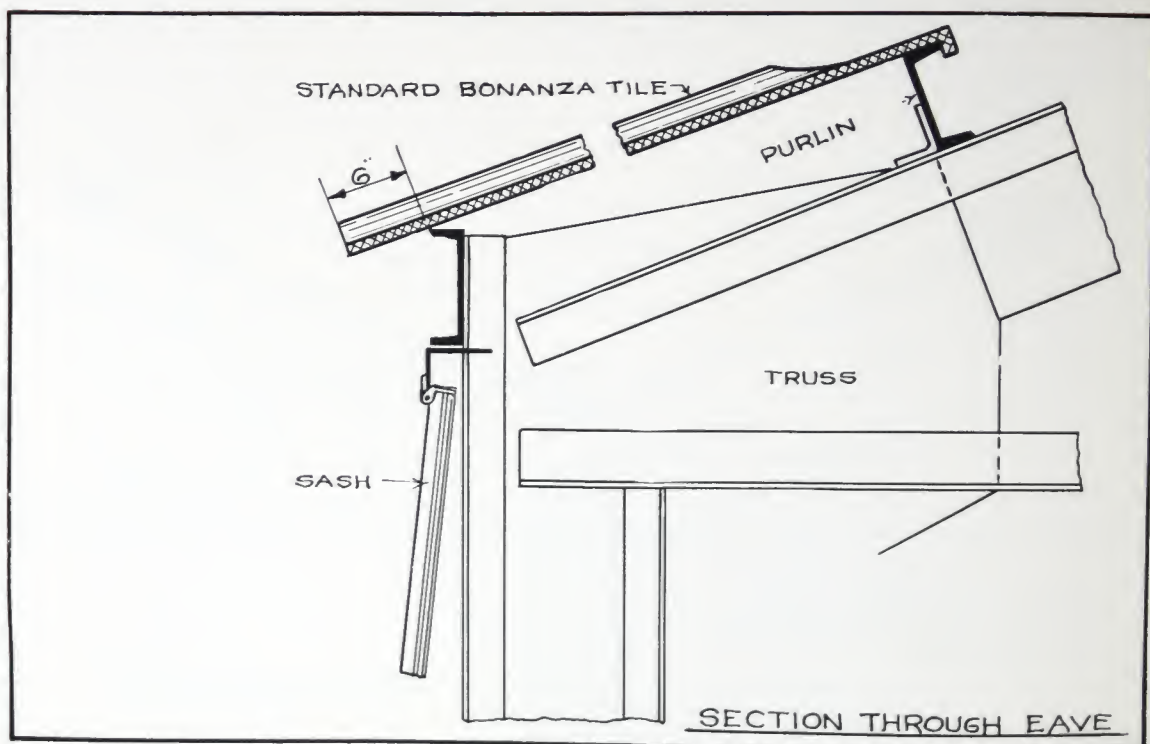
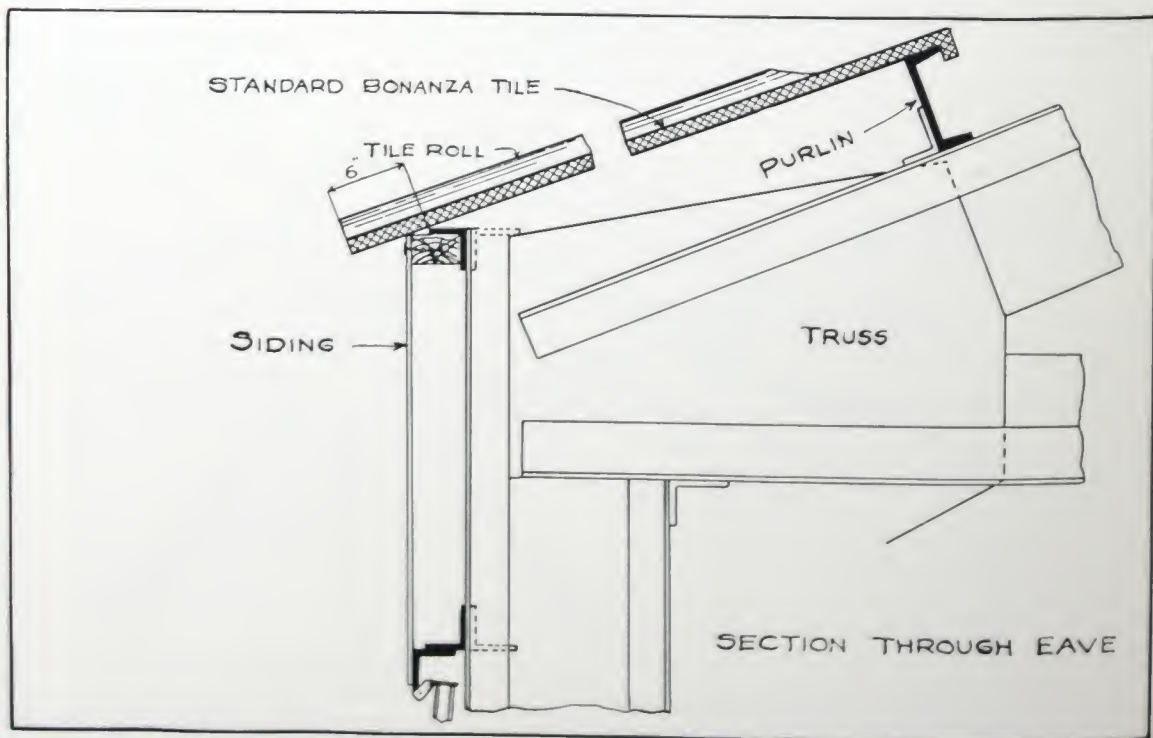


Plate 16





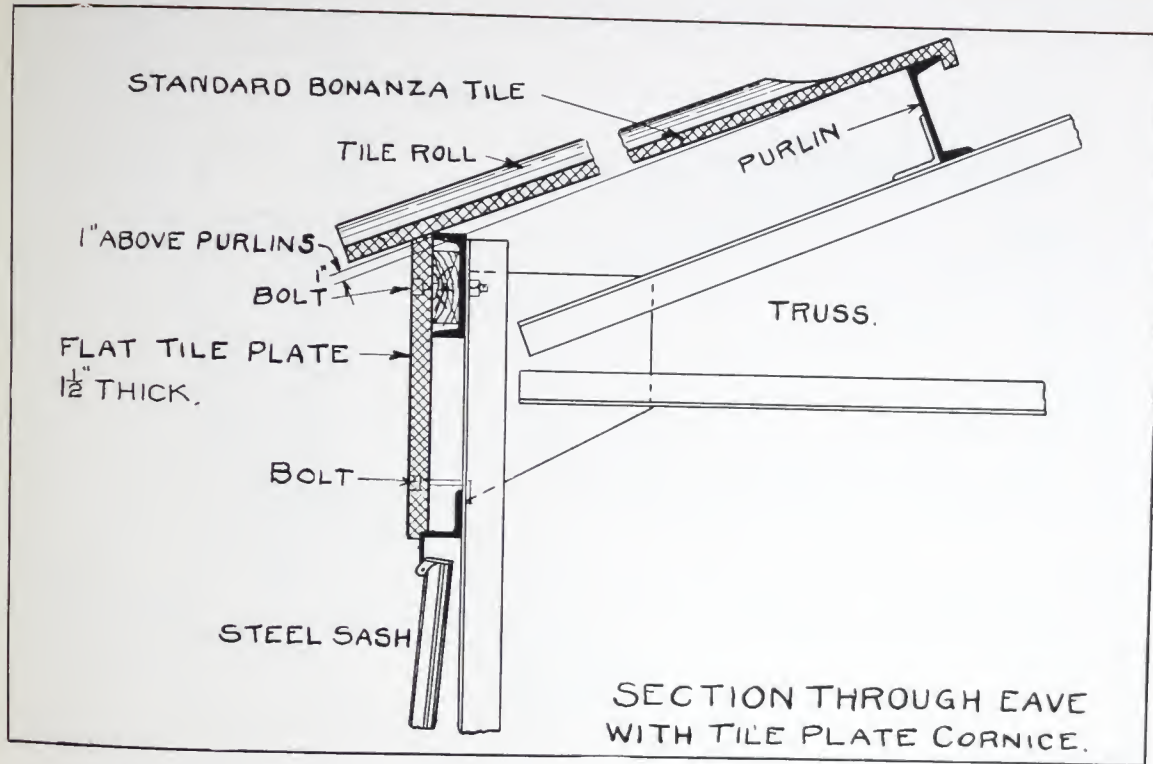


Plate 17

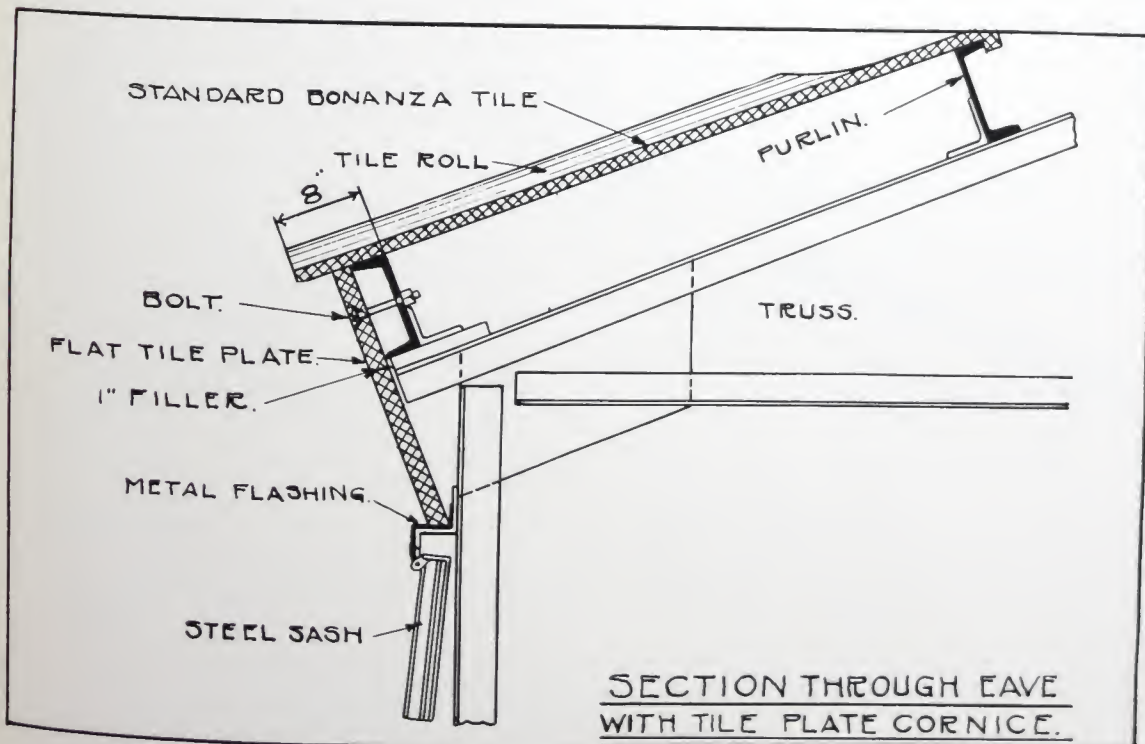


Plate 18

Plate 19

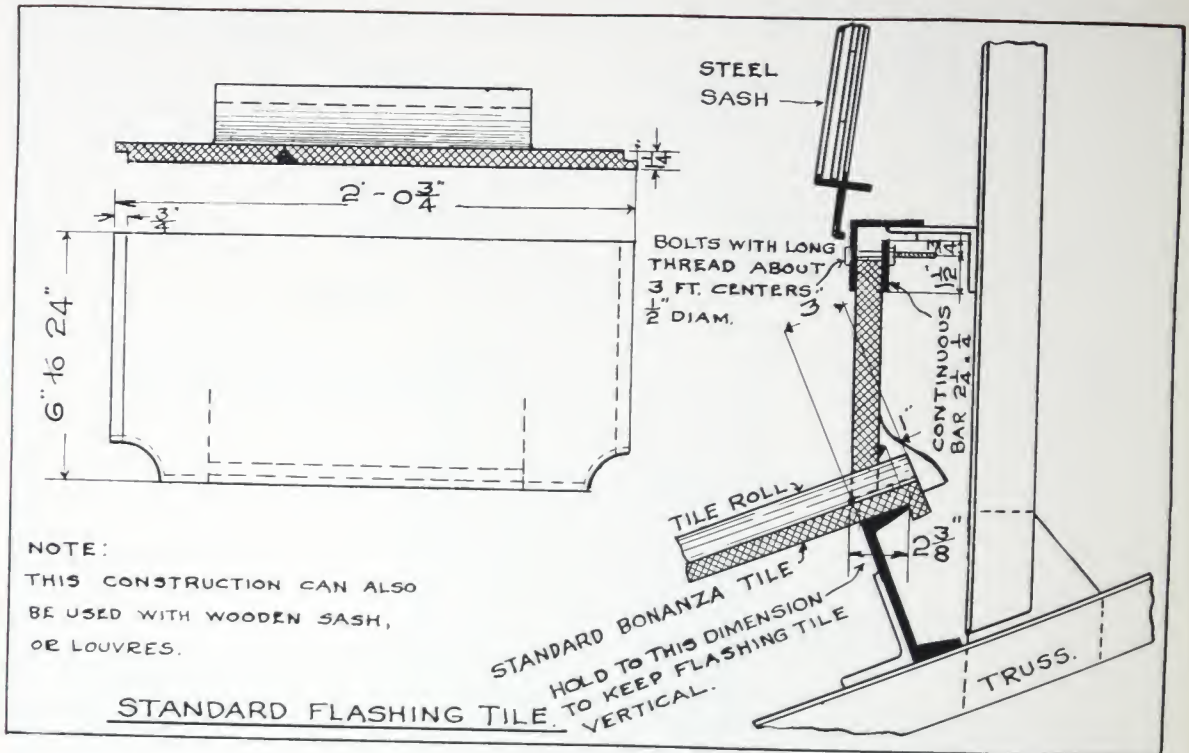
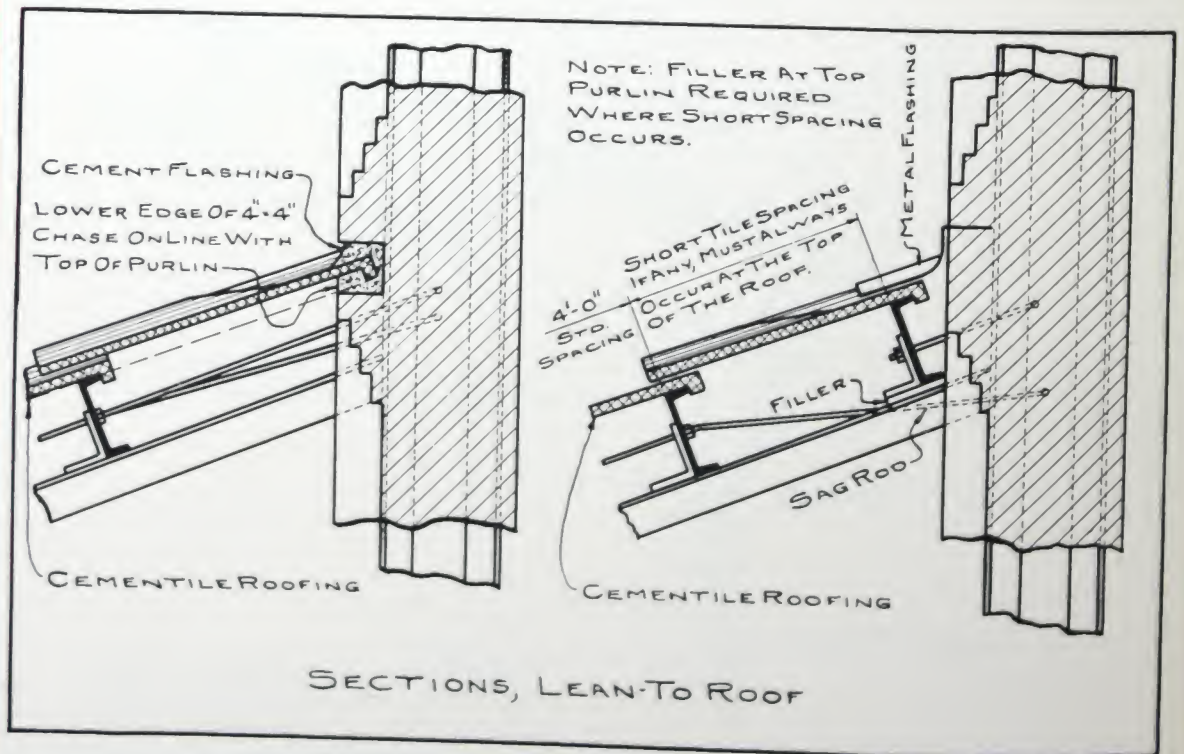


Plate 20





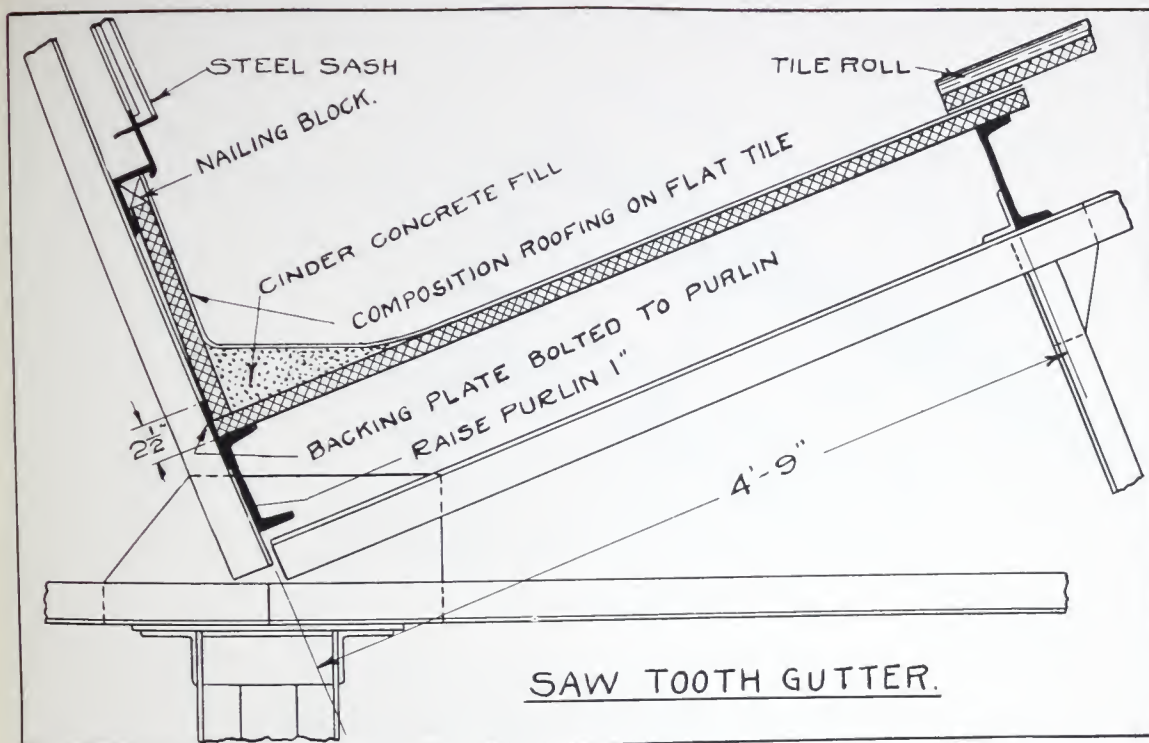


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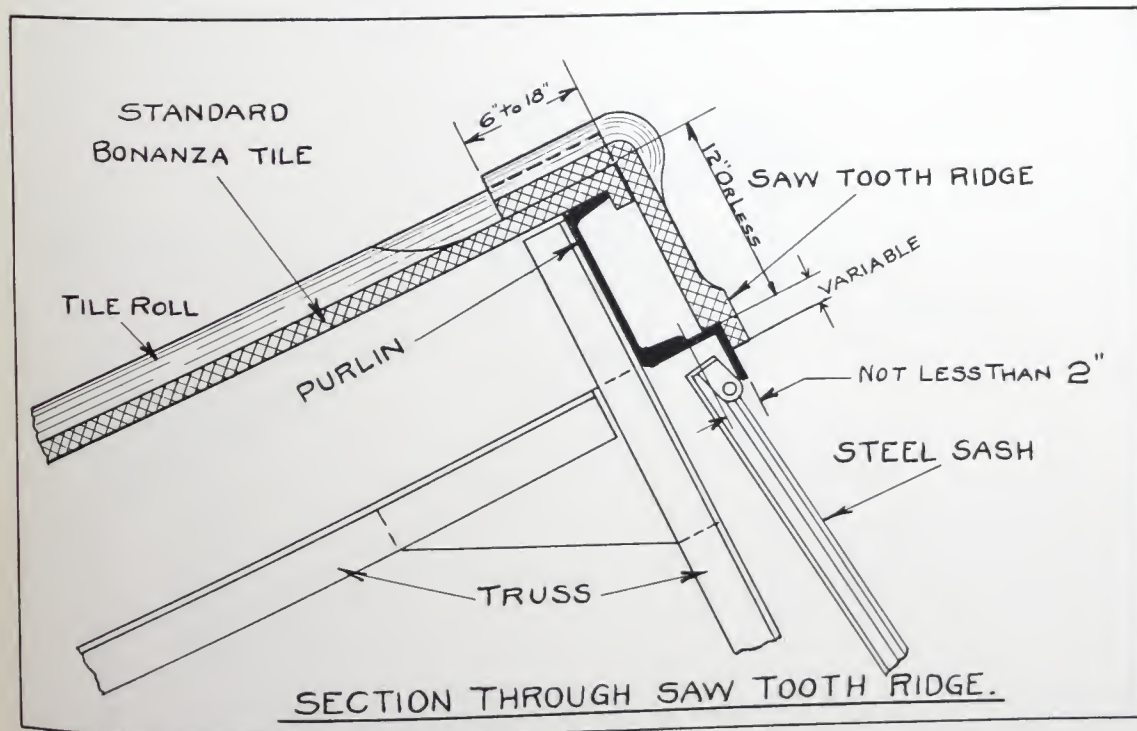


Plate 22

Plate 23

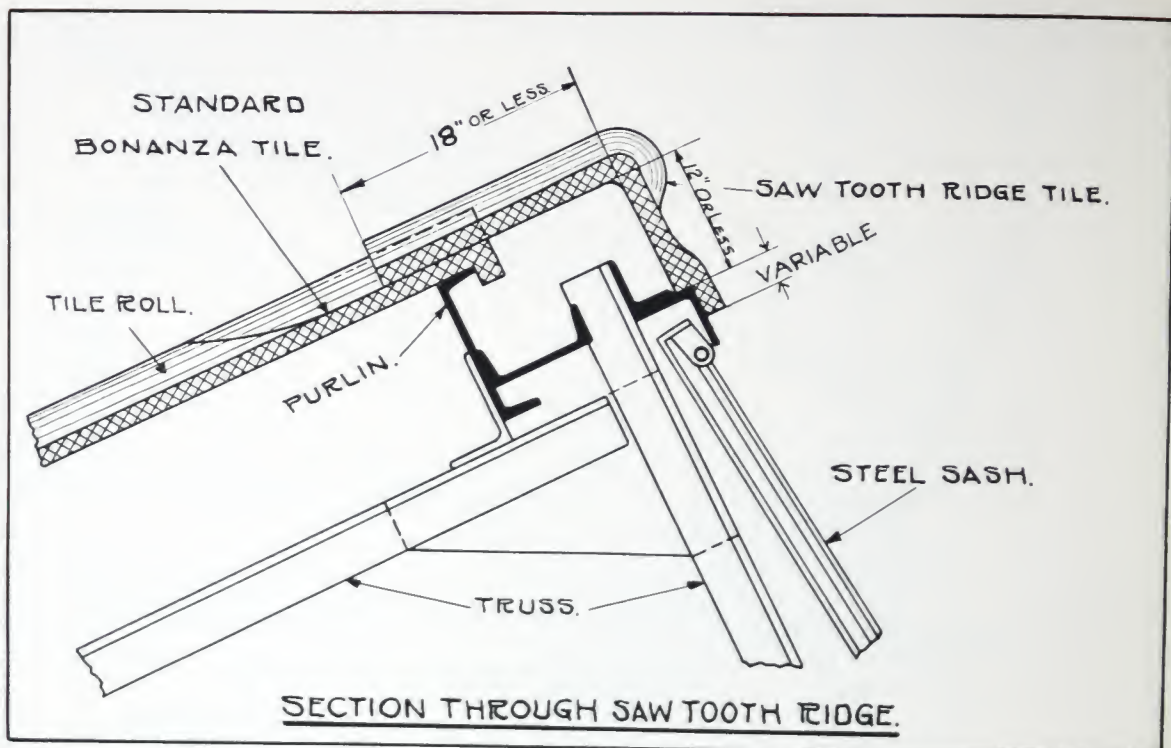
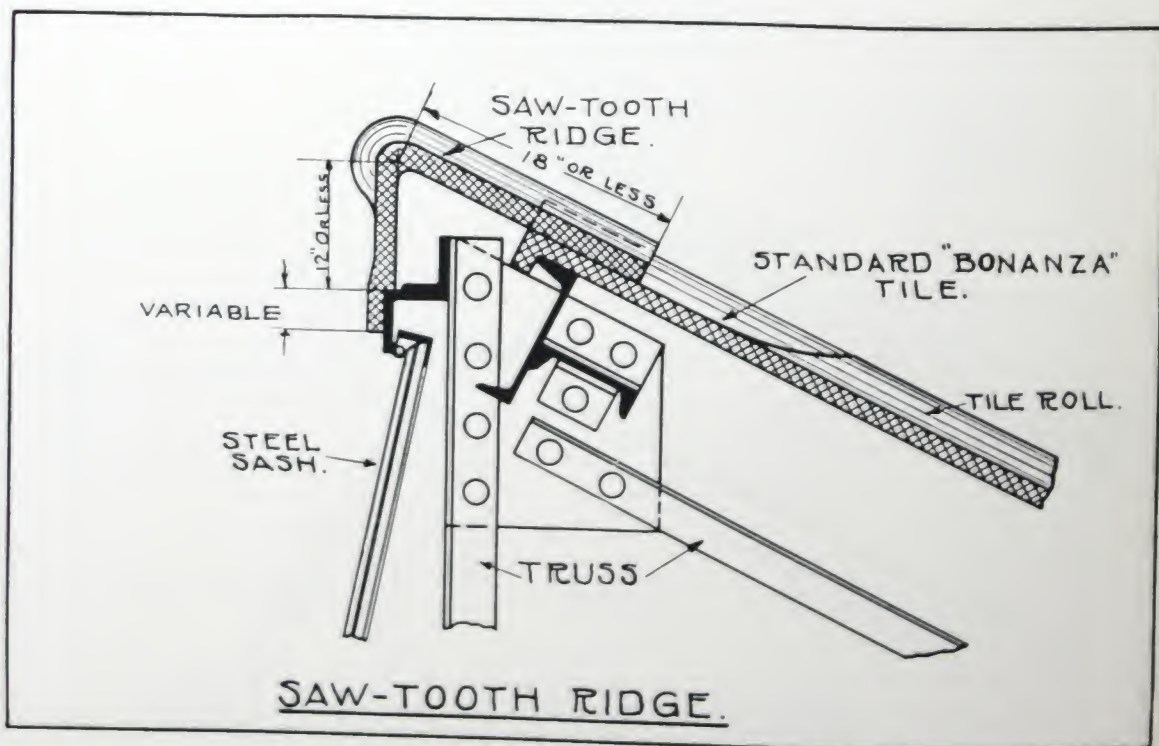


Plate 24





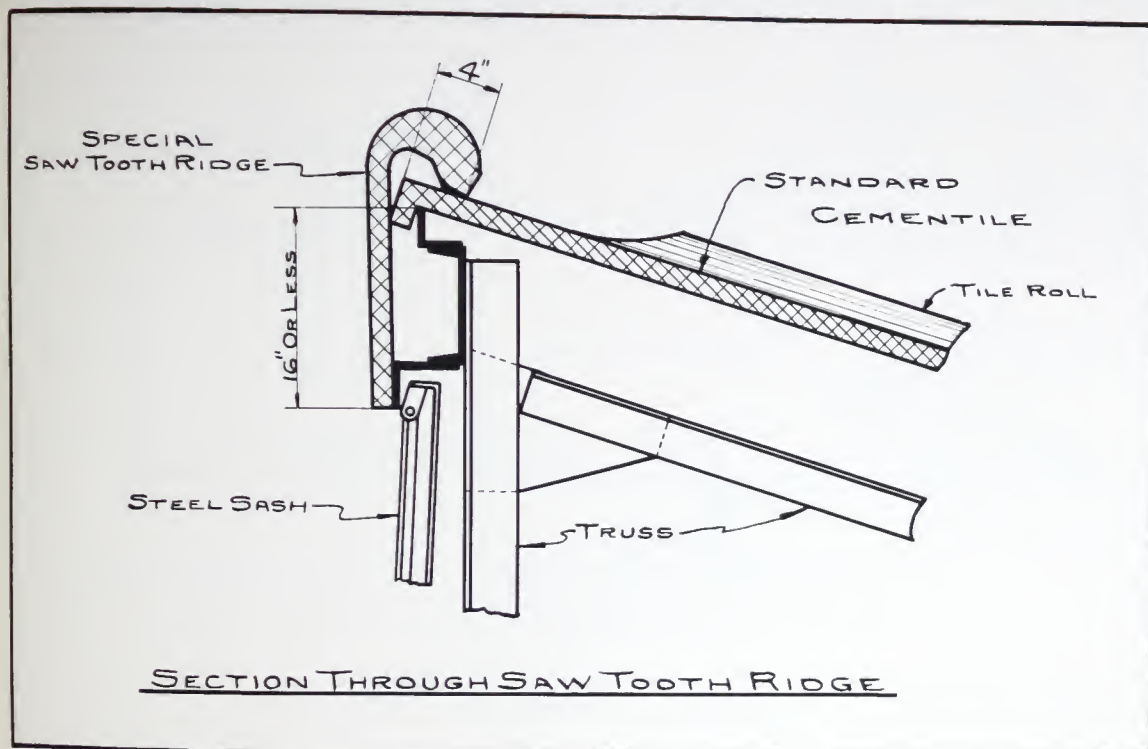


Plate 25

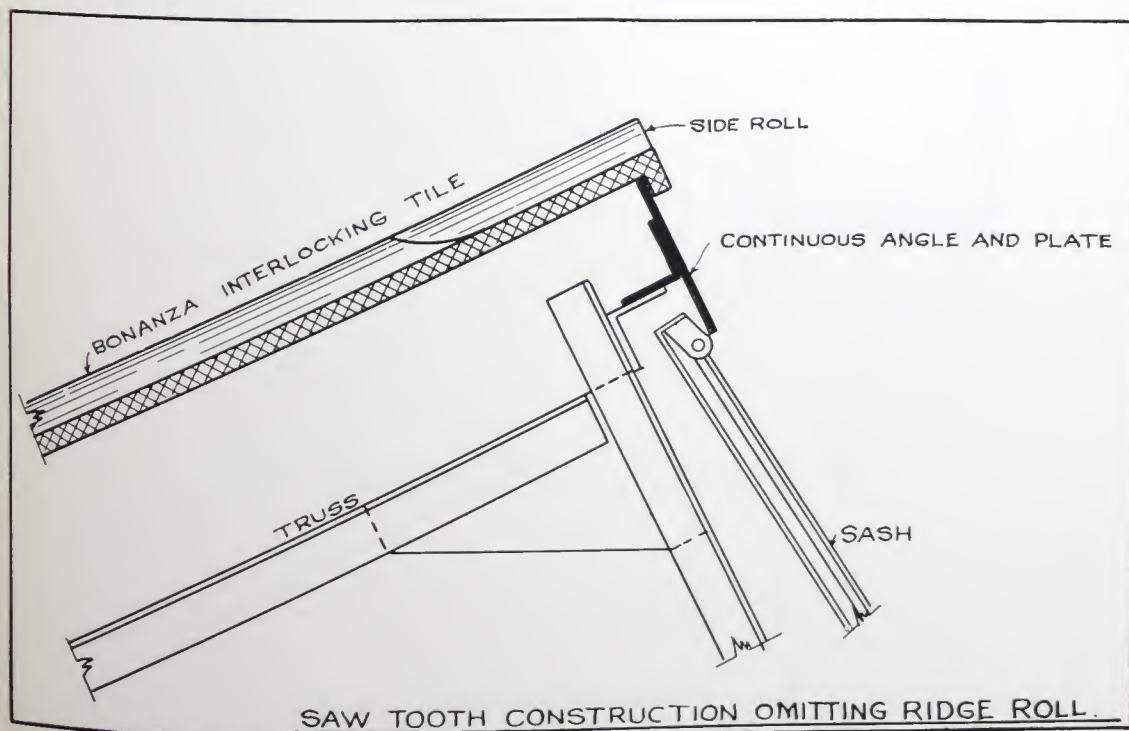


Plate 26

Plate 27

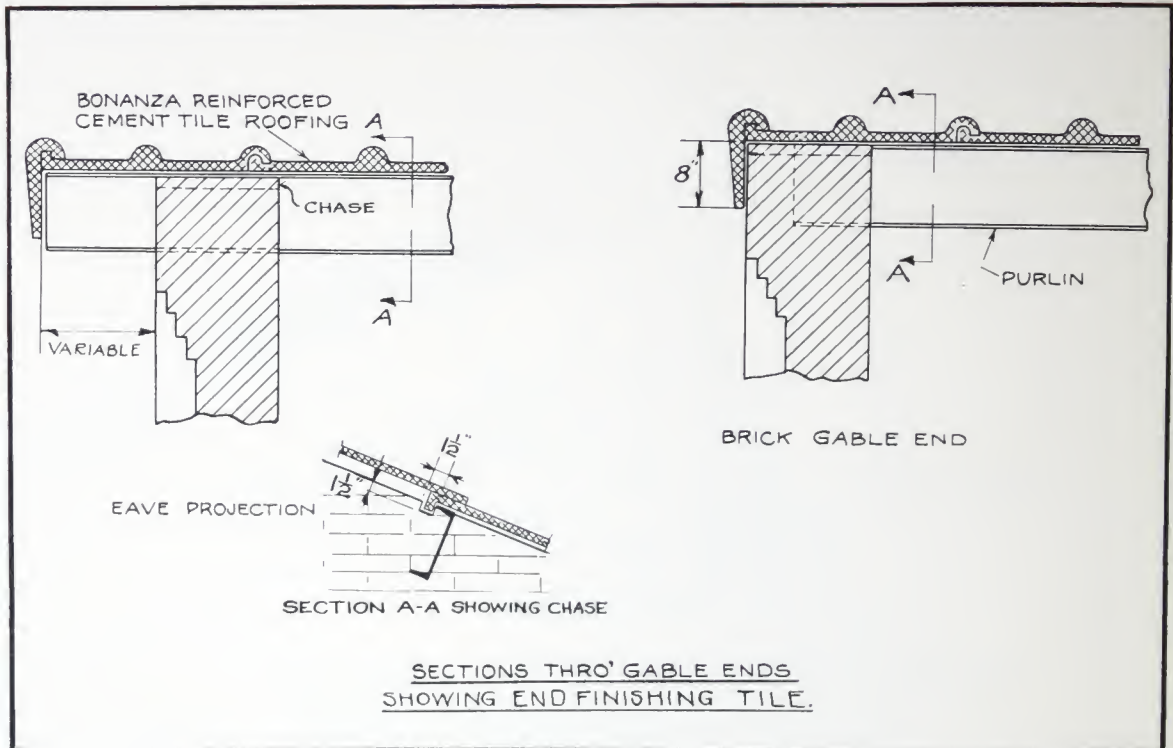
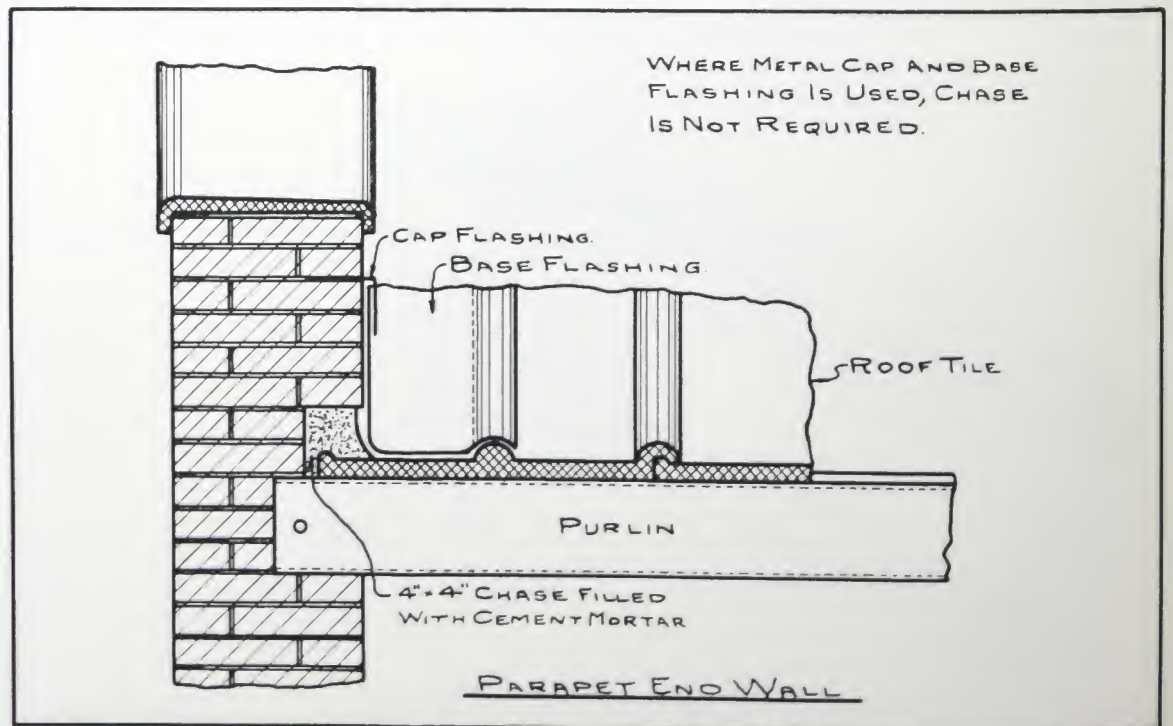


Plate 28





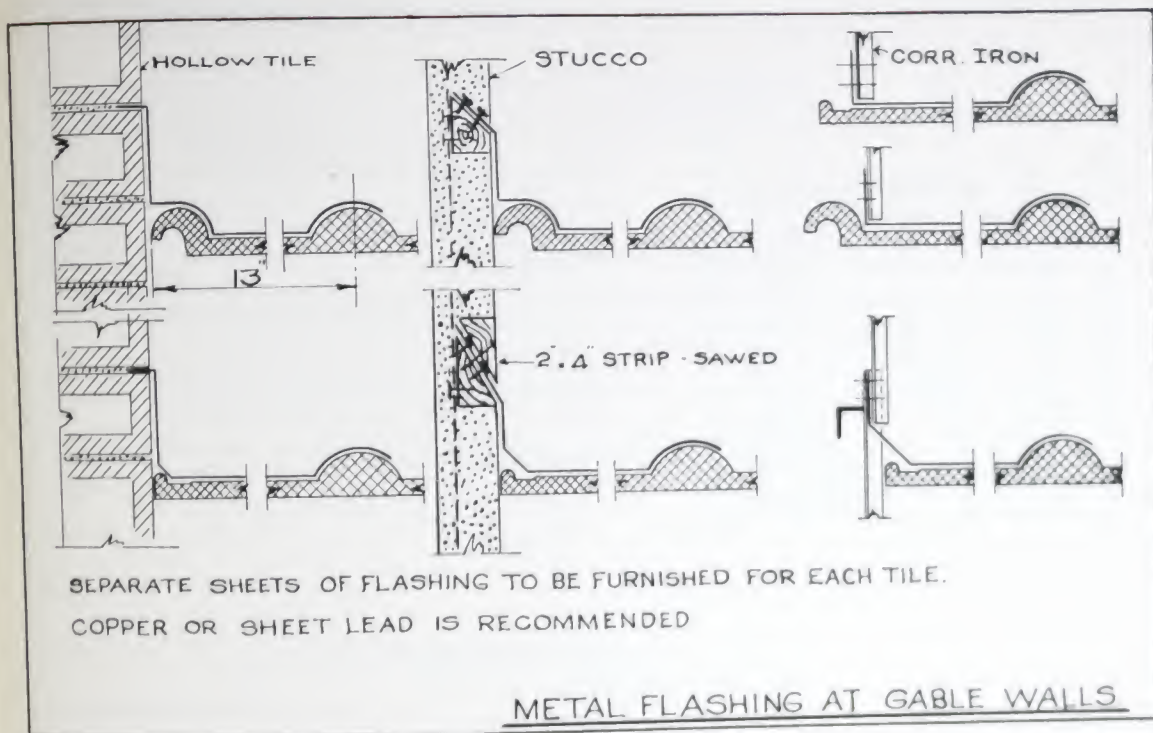


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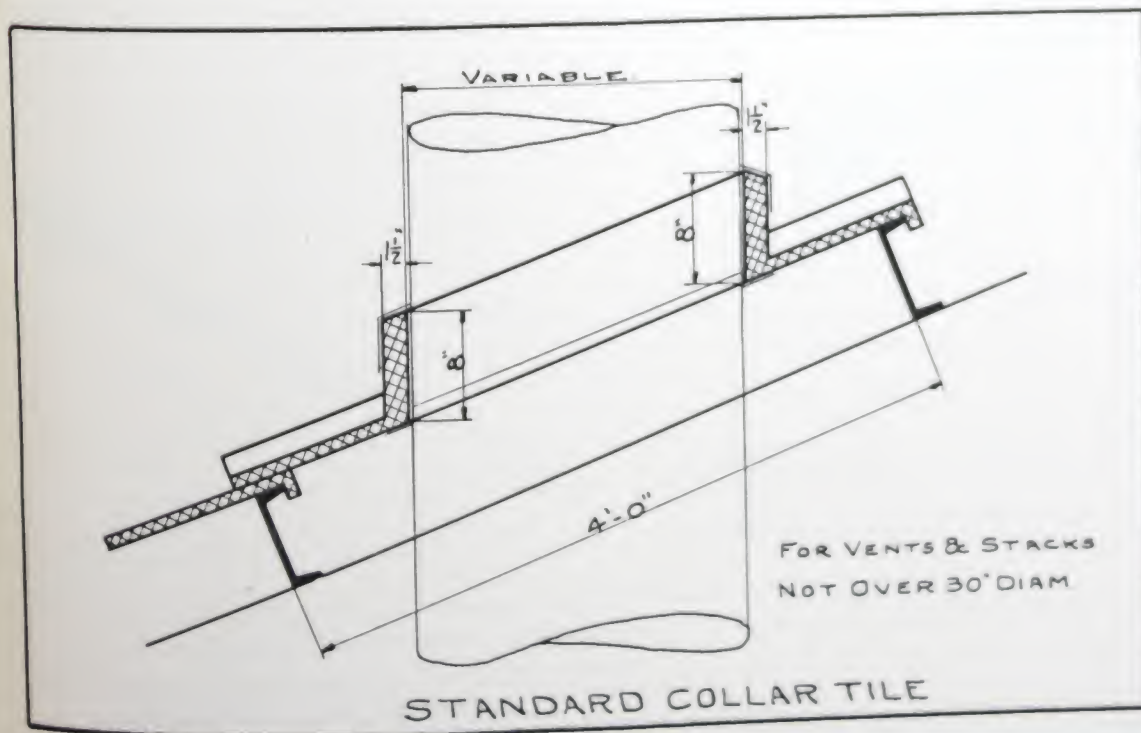


Plate 30

Plate 31

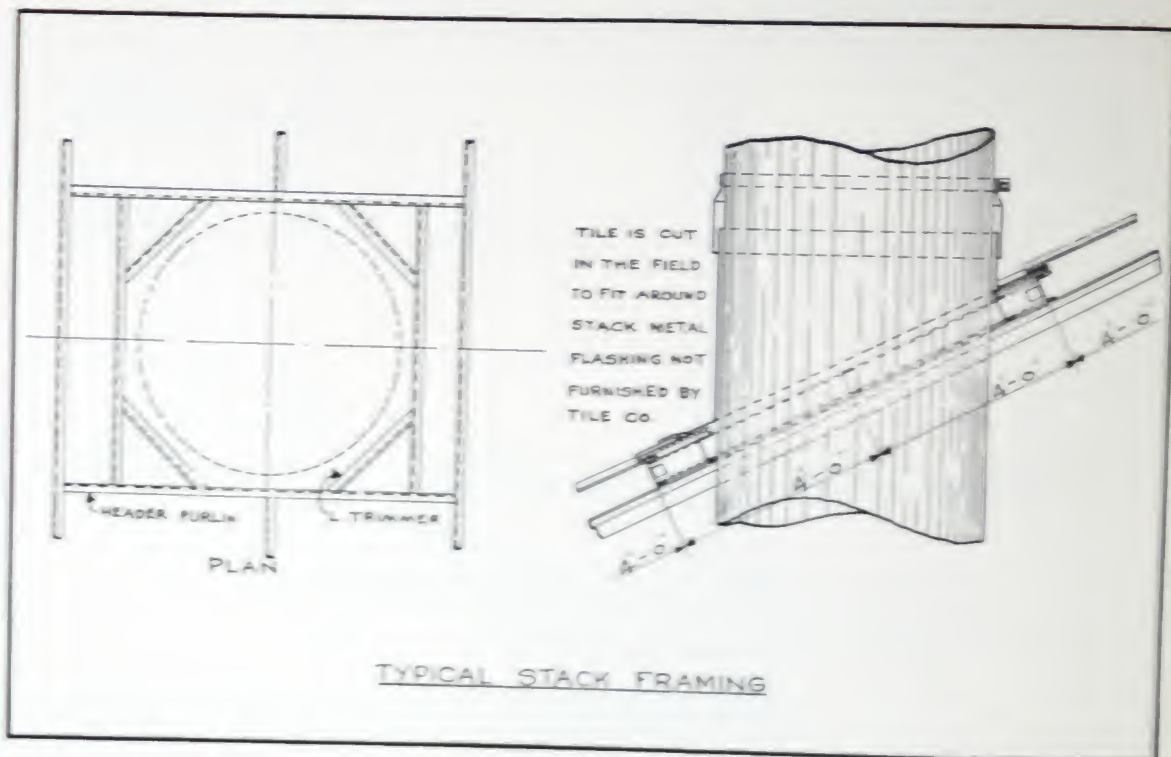


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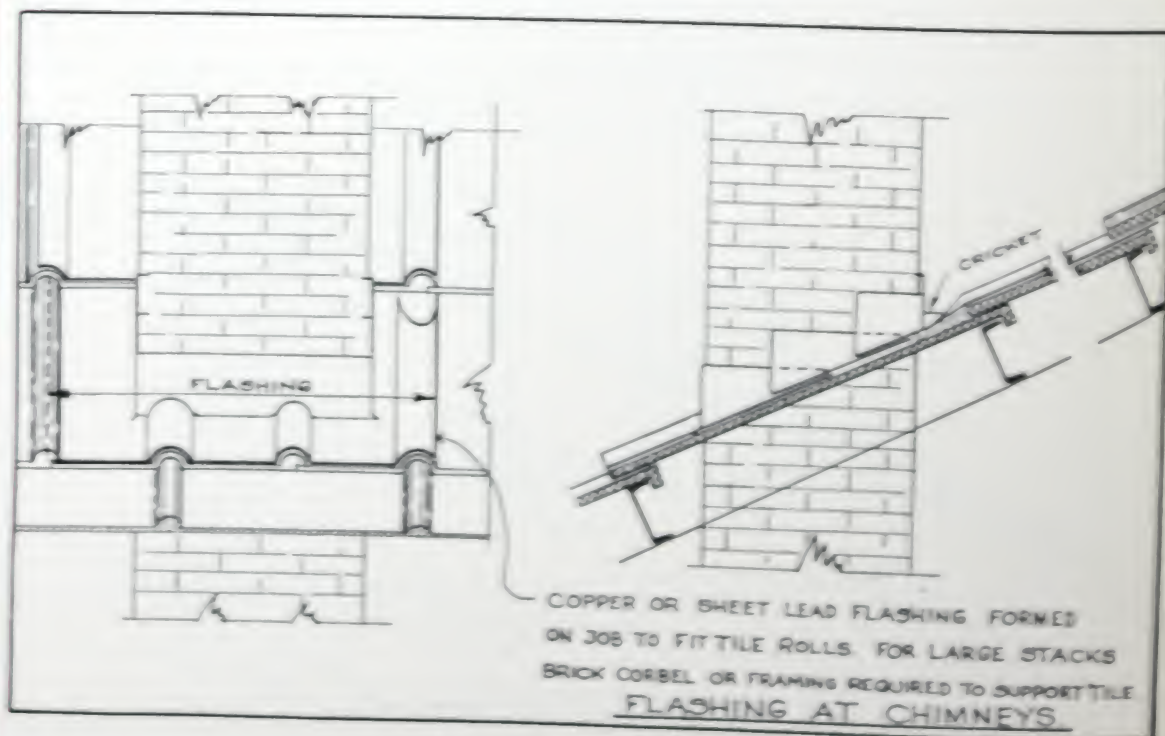




Plate 33

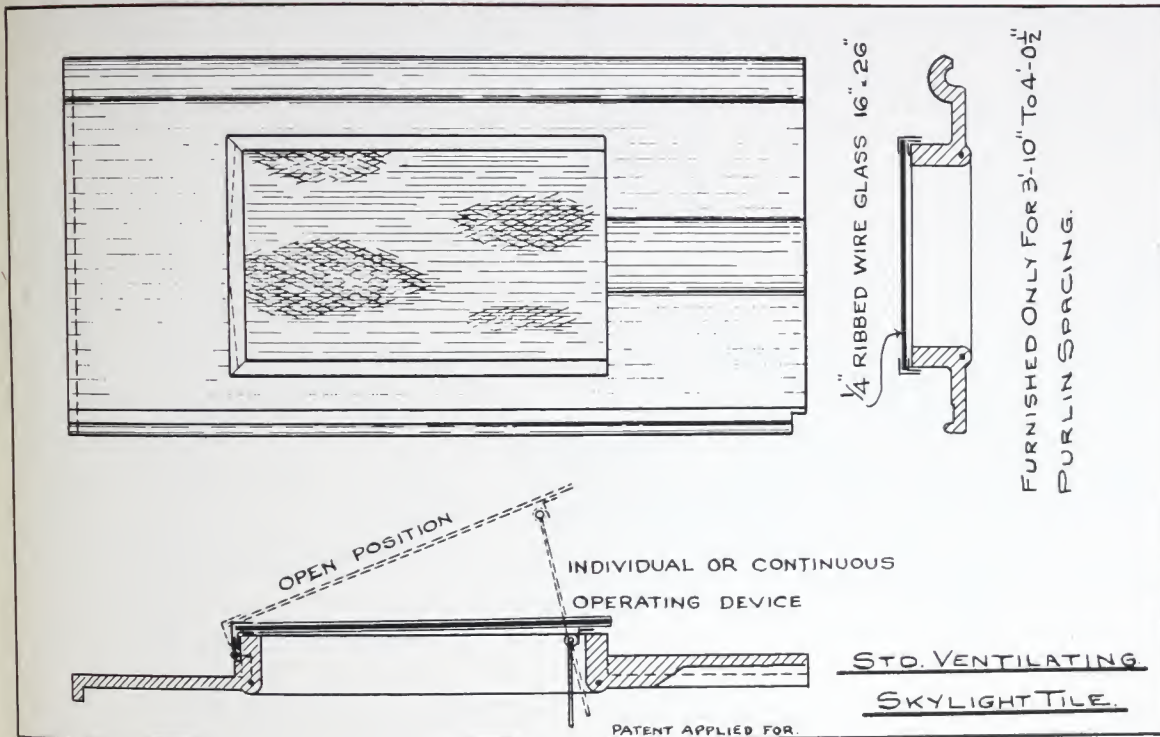


Plate 34

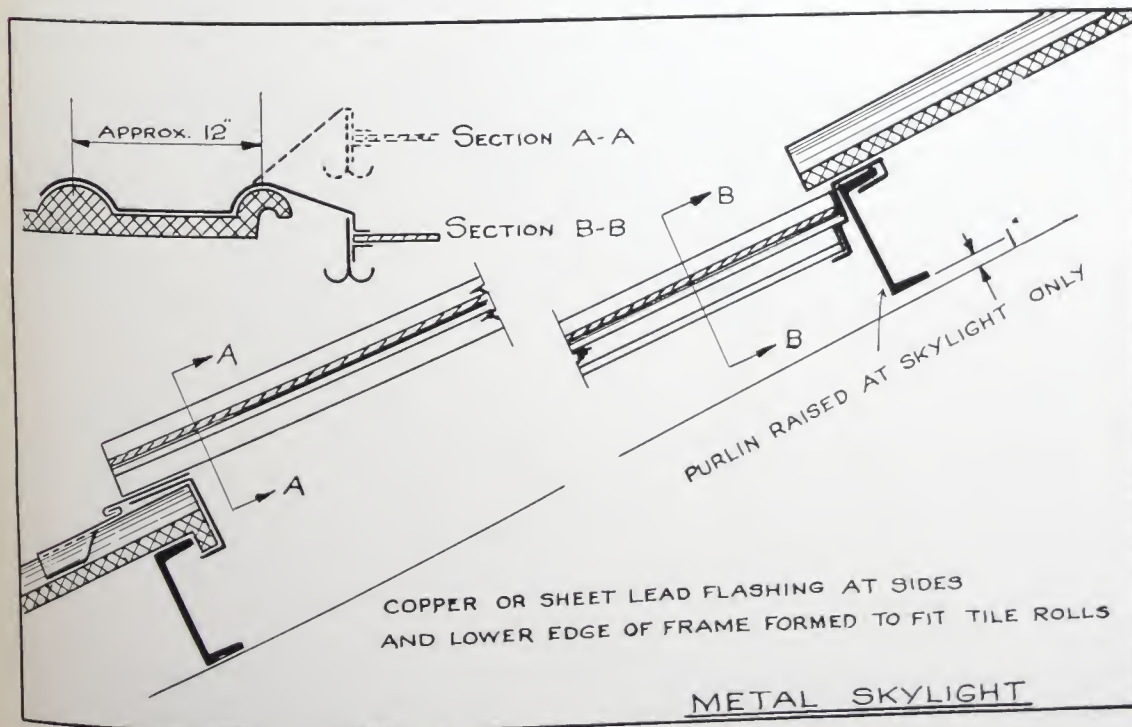


Plate 35

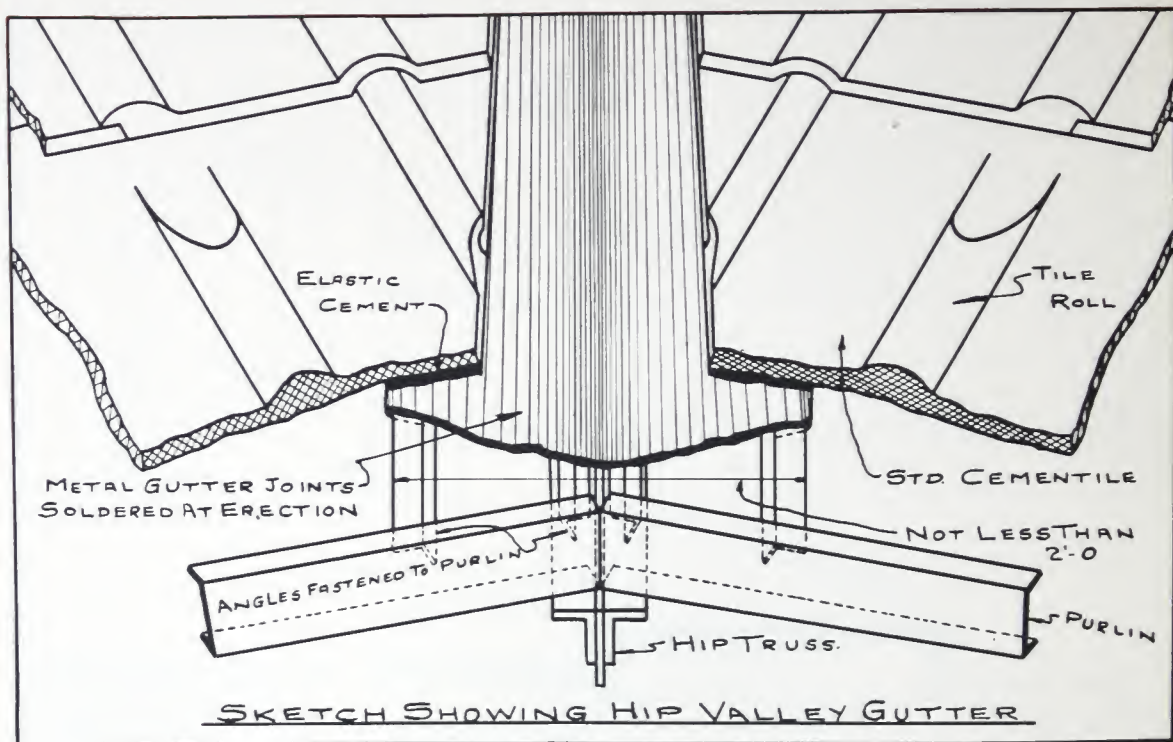
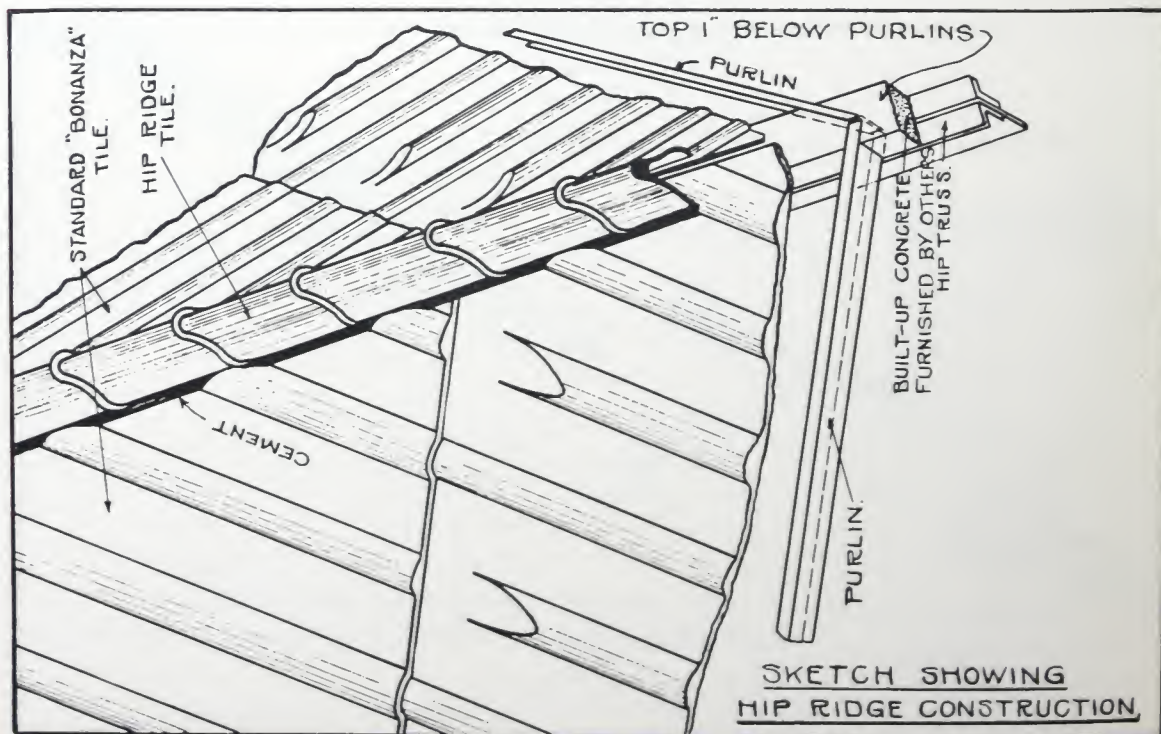


Plate 36





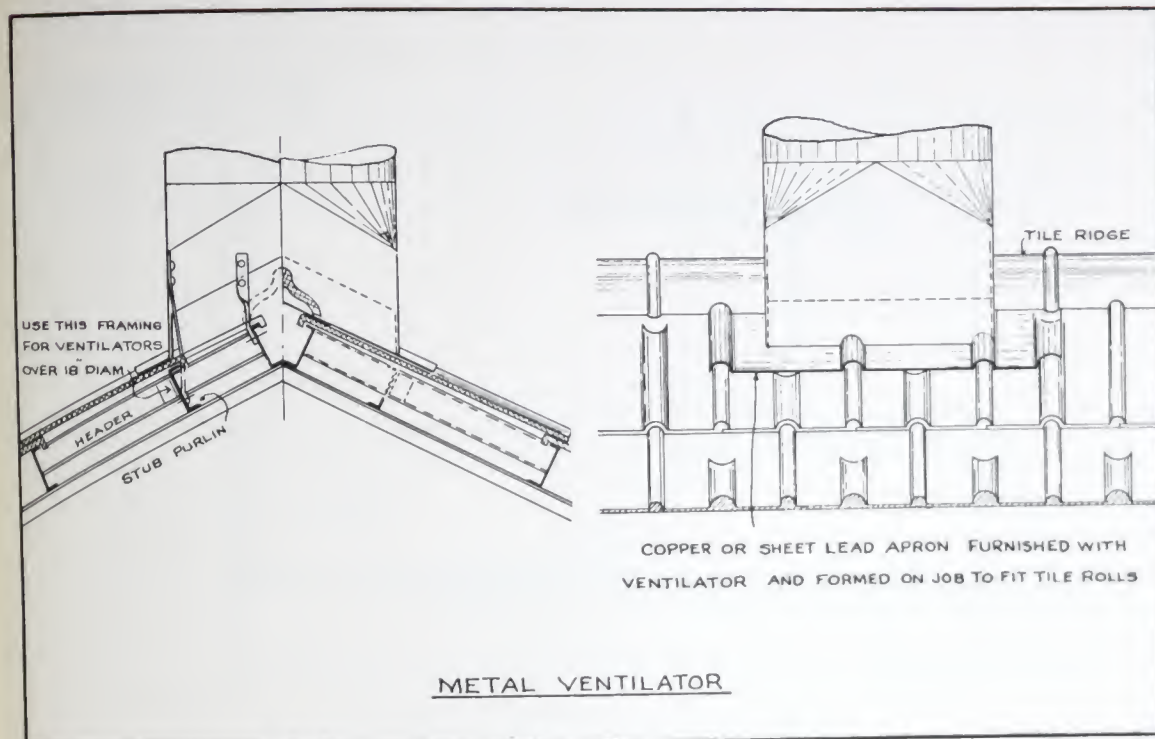


Plate 37

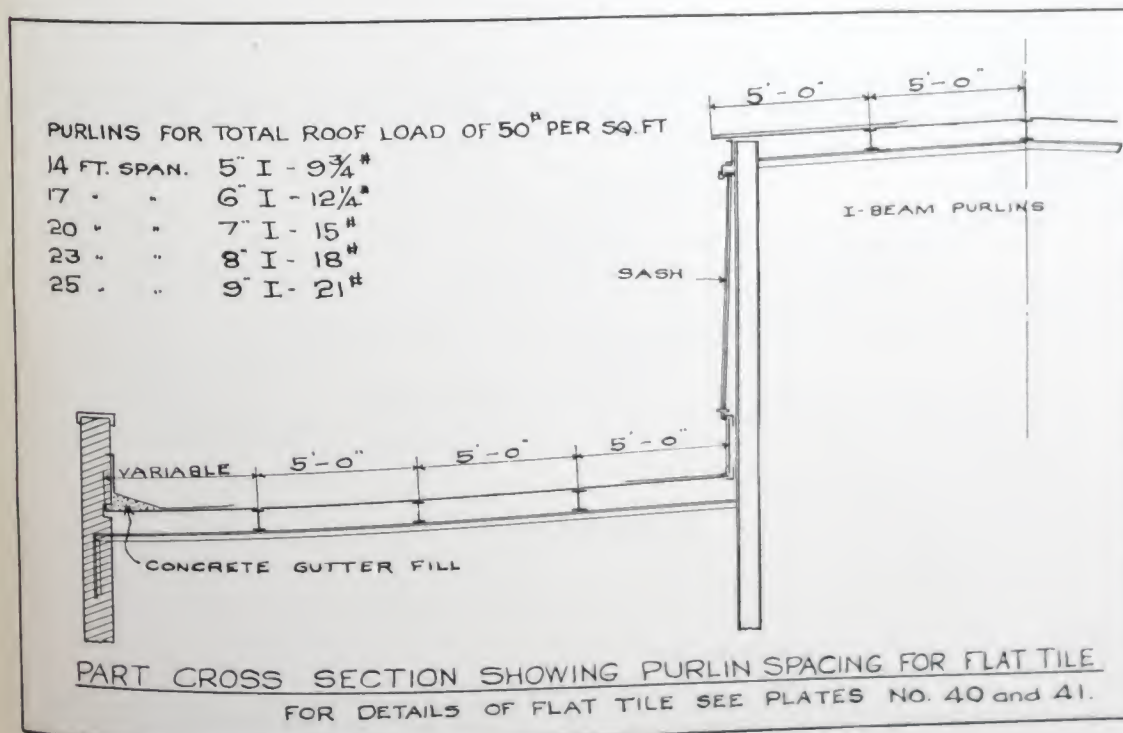


Plate 38

Plate 39

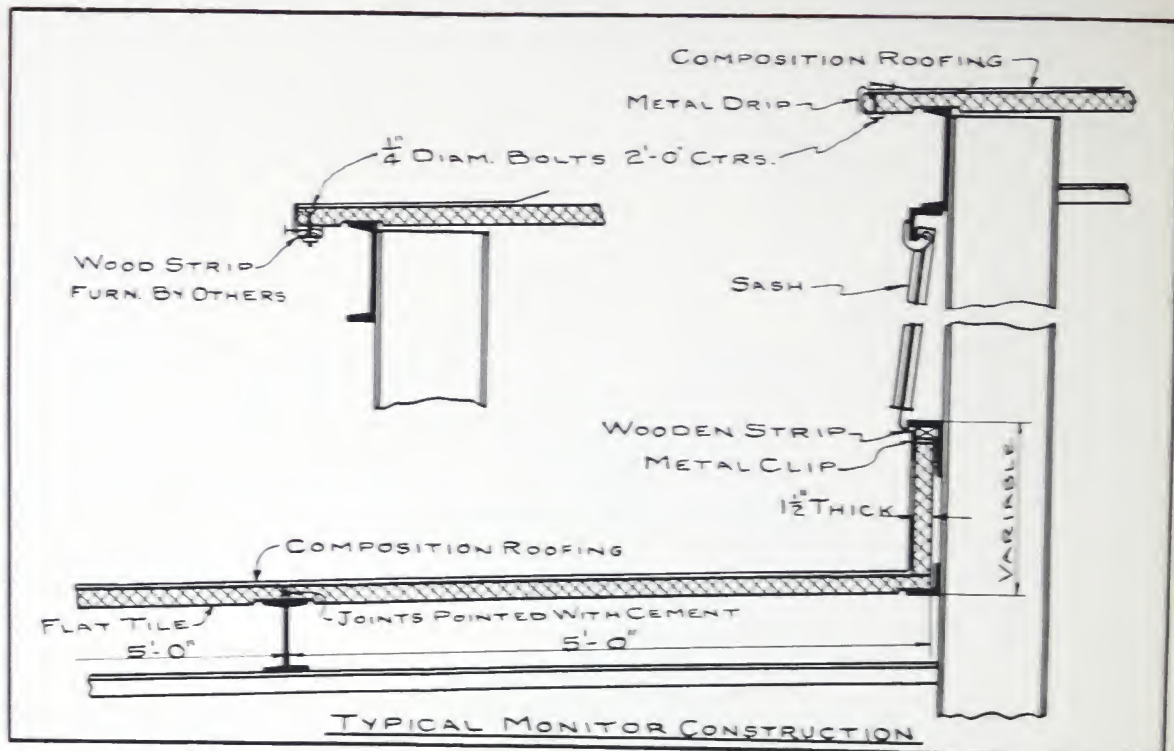
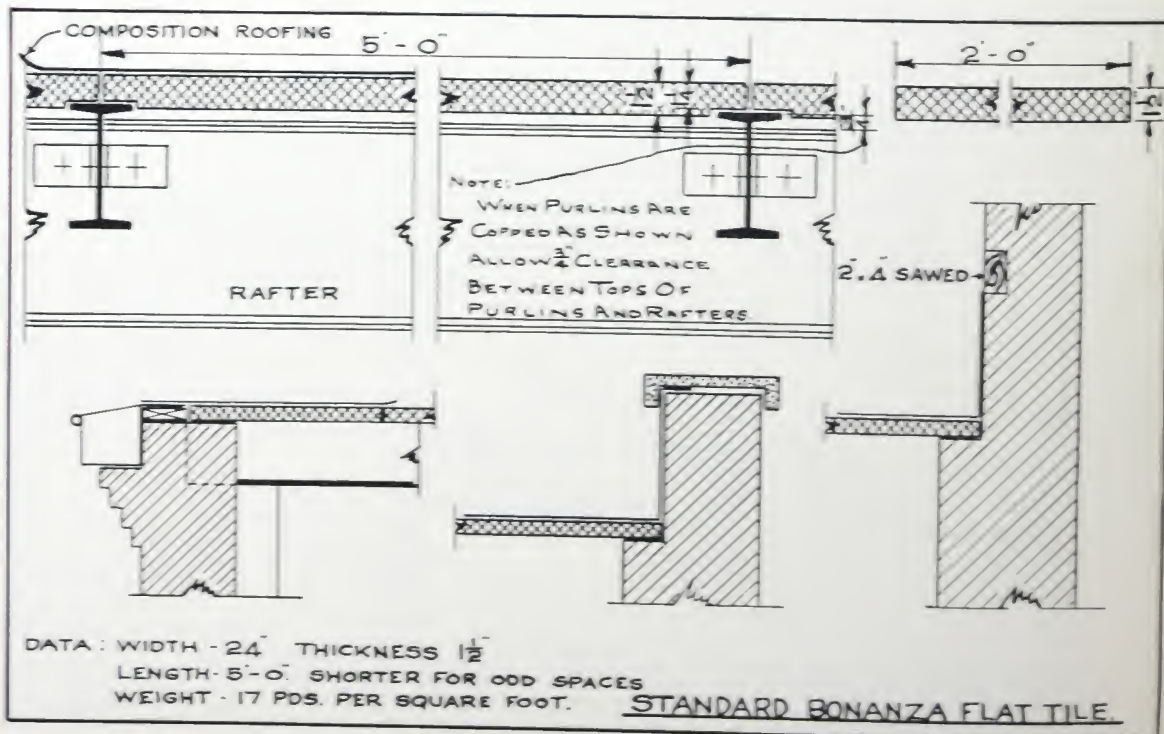


Plate 40





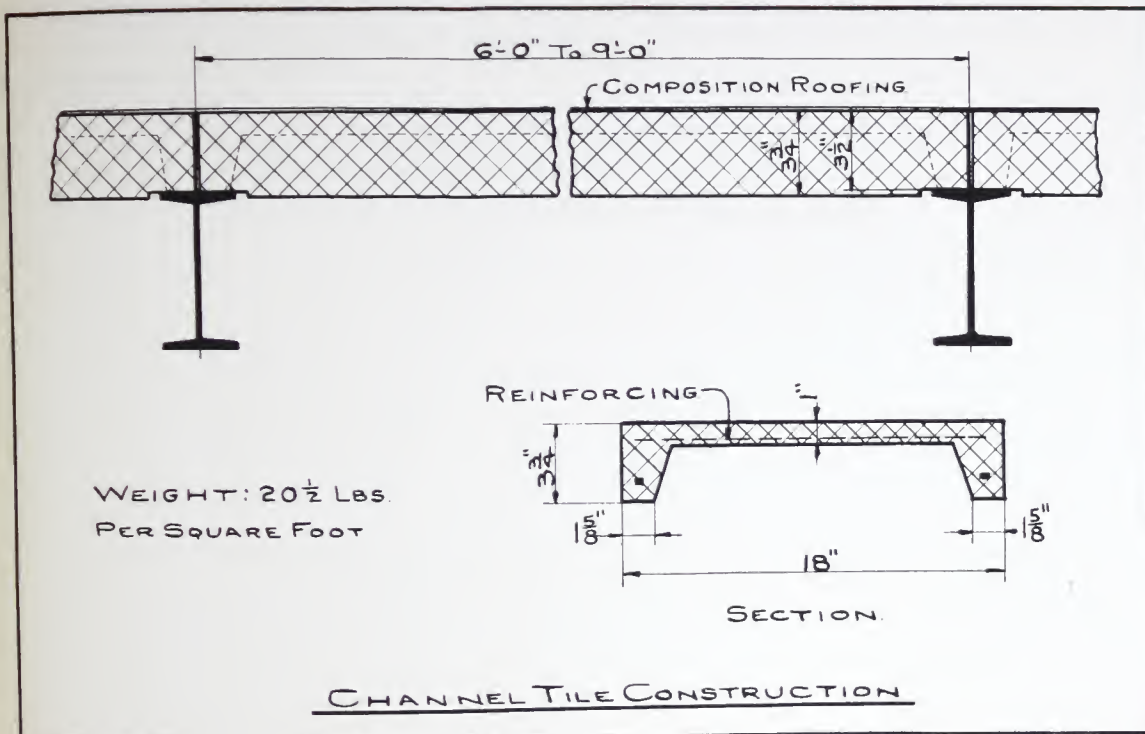


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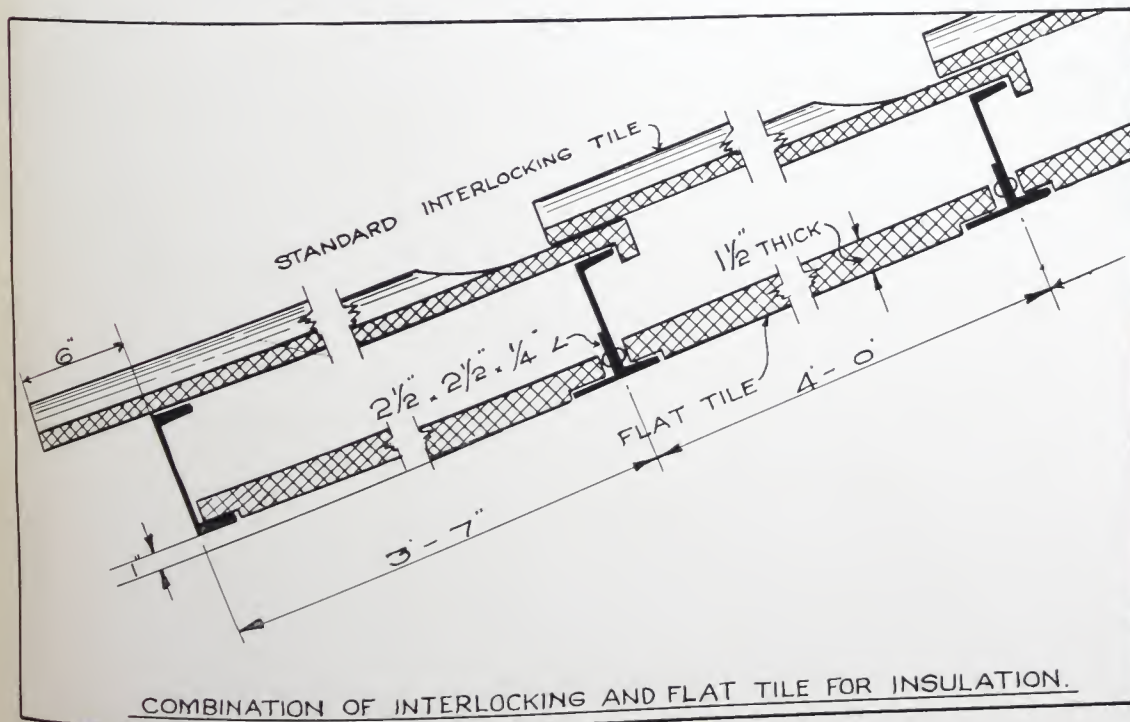


Plate 42

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Watertown Arsenal.....	10	Fisher-Ohio Body Co.....	21
Toledo Glass Co.....	10	Detroit & Windsor Dancing Pavilion.....	22
Bethlehem Steel Co.....	11	North Pole Ice Co.....	23
Baldwin Locomotive Works.....	11	Edison Electric Illuminating Co.....	23
Crucible Steel Co.....		Ford Motor Co.....	
Park Works, Pittsburgh.....	12	Kearney, N. J.....	24
Midland Works.....	12	Green Island.....	25
Woodward Iron Co.....	13	American Motors Export Co.....	25
General Electric Co.....	13	Pennsylvania R. R. Co.....	26
E. W. Bliss & Co.....	14	W. B. & A. Ry. Terminal.....	26
Lehigh Valley R. R.....	14	Interborough Railroad.....	27
Damascus Bronze Co.....	15	Atlantic Refining Co.....	27
Hubbard & Co.....	15	Atlantic & Pacific Tea Co.....	28
West Virginia Metal Products Co.....	16	Standard Oil Co.....	28
U. S. Government Buildings.....		Donaldson Garage.....	29
Muscle Shoals, Ala.....	16-17	Warner-Quinlan Co.....	29
Nelson Valve Co.....	17	National Theatre.....	30
Union Switch & Signal Co.....	18	Brevort Theatre.....	30
Bridgeport Brass Co.....	18	State Prison, Montgomery, Ala.....	31
Crescent Portland Cement Co.....	19	New York City Waterworks.....	31
Boldt Glass Co.....	19	Baldwin Locomotive Works.....	
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